

Champion

CHAMPION BLOWER AND FORGE CO.
LANCASTER, PA., U.S.A.

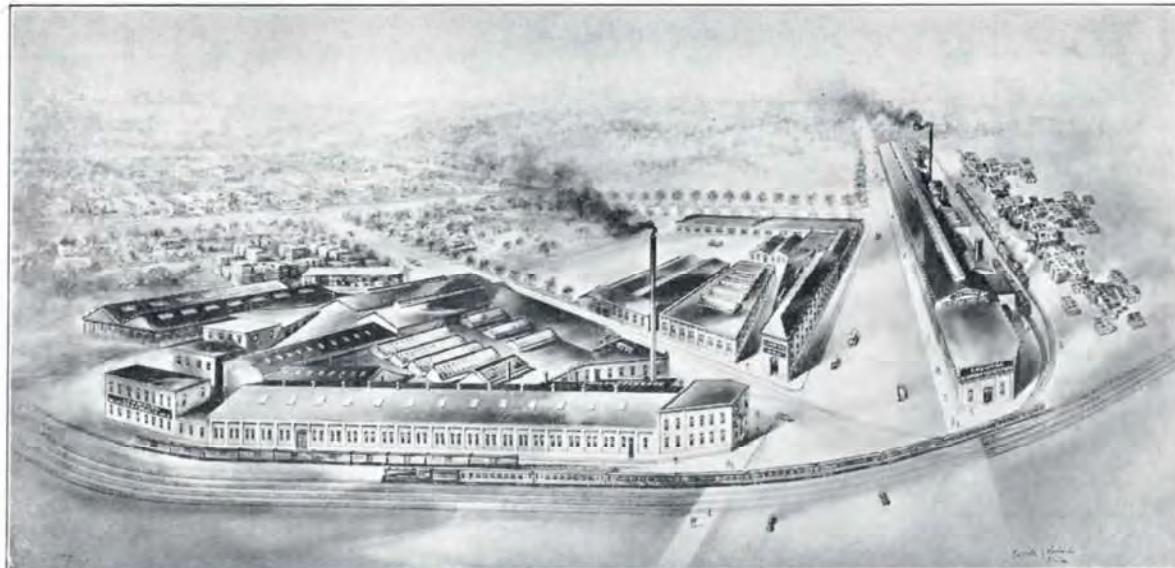
FOUNDED
1875

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INCORPORATED
1887

CATALOGUE No. 80



GENERAL CATALOGUE OF
“Champion”

Blowers	Saw Mandrels	Arbor Presses	Tire
Forges	Grinders	Screw Plates	Shrinkers
Tuyere Irons	Buffers	Taps	Tire Benders
Forge Shop	Polishers	Dies	Power
Drills	Exhaust Fans	Tap Wrenches	Hammers
Vises	Mine Fans	Charcoal Grills	Punches
Power Hack Saw Machines	Fans for Heating, Cooling, Ventilating, Drying and Mechanical Draft		Shears

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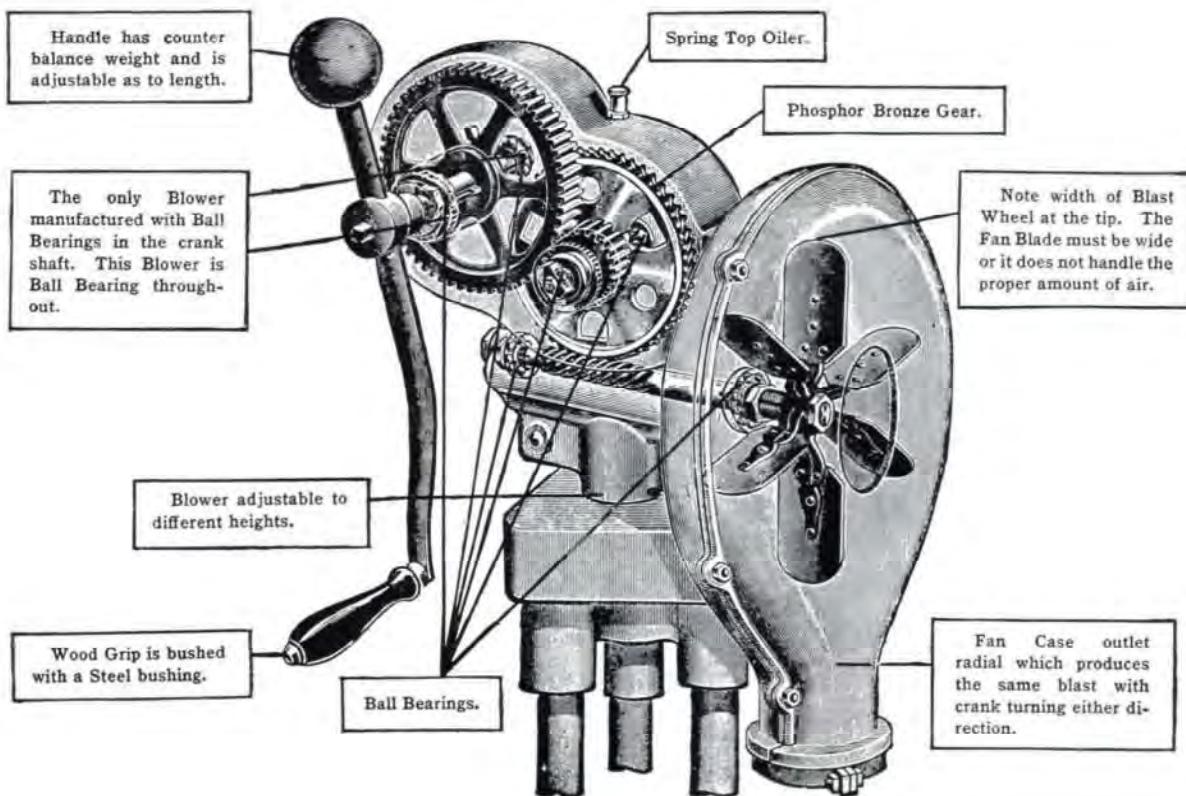
The Champion Blower & Forge Company
Lancaster, Pa., U. S. A.

CABLE ADDRESS—“CHAMPION LANCASTER” (PENNSYLVANIA)

www.OzarkToolManuals.com



THE 400 CHAMPION "PATENTED" HIGH-SPEED SPIRAL GEARING SHOWN IN DETAIL



The 400 Champion "Patented" High-Speed Spiral Gearing in transparent cut shows the machinery in detail as every part is fitted up when in working order.

This transparent cut, in connection with the gearing cut, shows the inner workings of the "Famous 400" Gearing, so that the inexperienced can understand and appreciate its high grade construction.

The Fan Case is pear-shaped with outlet radial which produces the same blast with the crank turning either direction.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

The blades on the blast wheel are not tapered or narrow, but are the same width at the tip of the blade as at the hub, therefore must throw a larger volume of air than a tapered blade. This wide blade gives the operator full benefit of the blast from every revolution of the crank and with the high-speed spiral gearing produces a white heat pressure blast, equal to a blower run by power.

All this means that the Champion 400 Blower, with 12" fan case and with wide blade blast wheel, produces more volume at a higher pressure than any other 16" hand blower with narrow or tapered blade.

The 400 Champion "Patented" High-Speed Spiral Gear has been manufactured by us for many years and is in use on over a million Champion Steel Blowers and Forges, distributed in every section of the globe.

The 400 Spiral Shaft with Fan Wing attached is the only piece of the entire gearing that runs at high speed.

Every piece in the High-Speed Spiral Gear is built large, powerful and substantial. Fully equal to ten times the high speed required to run a Blower.

The 6-inch Special Phosphor Bronze Spiral Gear and the Tool Steel Spiral Shaft are the same size in diameter and teeth used on Spirals running at 20,000 revolutions per minute, carrying heavy loads.

The 400 Champion Concaved Spiral Gear, riding the Spiral Shaft lengthwise, meshes eight (8) full teeth continuously, which forever makes lost motion or noise impossible.

The 400 Champion Ball Bearings are all adjustable with cups and cones lathe-turned from the solid tool steel bar and hardened like glass, then ground and polished to the finish of a mirror, thus making the most perfect and durable High-Speed Adjustable Bearing that can be manufactured.





THE FAMOUS 400 CHAMPION BLOWER
The Original Cut Gear Hand Blower, with Over a Million in Use
This Is the Blower that Has Revolutionized the World's Hand Blacksmiths' Fires and Made Them a Most Profitable Business

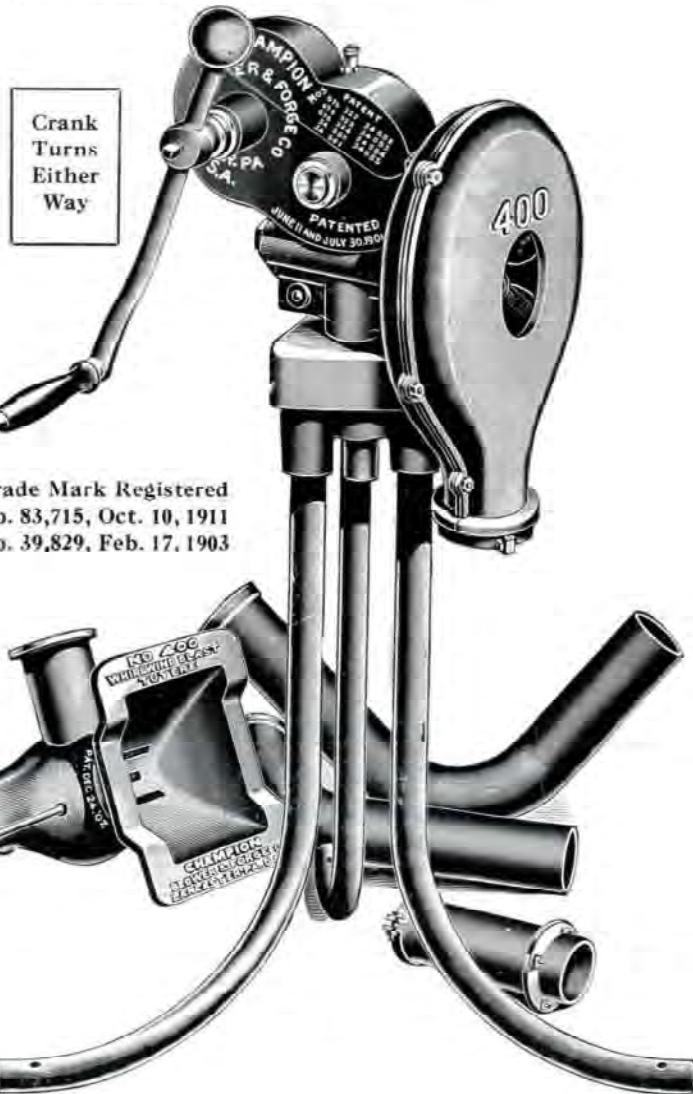
The Famous 400 Champion Blowers and Forges, after many years of work with over a million in use, unquestionably stand in a class of their own.

The users are their staunchest supporters and it is our desire that those who are not familiar with their value ask what the Owners Say, and particularly those who have used them many years, as it is the only blower as good after many years' use as when new.

The 400 "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and complete piping is furnished with the 400 Blower without extra charge. This Tuyere, in combination with the high speed of the "Famous 400" Blower, produces a circular, rotary, "whirlwind," white heat blast which heats iron at least one-third quicker and with an equal saving in coal, as no heat is wasted by being blown up the chimney.

The 400 Blower and "Whirlwind" Blast Tuyere represents in every respect the greatest value in a Blast Producer. Its Gearings, in connection with the Adjustable Ball Bearings, are constructed from the highest grade of Special Phosphor Bronze and Tool Steel, turned and finished with special Automatic Machinery, thus making the Blower run in the most accurate and smooth manner that can be constructed by human hands.

The 400 Blower can be supplied with 6 x 1-inch tight and loose pulley for both hand and power drive, or can be mounted on a short pedestal for bench use.



No. 400 Bench

No.	Fan	Weight	Code
400 Stand	12"	160 lbs.	Facanea
400 Bench	12"	145 lbs.	Fag

Champion Steel Blacksmith Blower is made for either right- or left-hand fires. Right-hand Blowers always furnished unless otherwise specified.



CHAMPION STEEL RIVET FORGES
The Original Ball Bearing Rivet Forge
Made with Adjustable Ball Bearings Only



No. 401

Champion Steel Rivet Forges have been on the market for many years and are used by the great majority of Railroads, Bridge Builders, Boiler and Structural Iron Workers of the world, also very desirable for garages. Nothing was ever seen to even approach them for a strong positive blast. We can guarantee them to increase the work over and above any other make of Rivet Forge 25%. Their Gearing is the "Famous 400" Champion "Patented" High Speed Spiral Gearing. They run noiseless, and can be taken apart for transportation, and again set up in a few minutes. They will produce blasts to weld 3½- to 4-inch iron in ten minutes. No. 401 Steel Rivet Forge is used on 99 out of 100 Structural Steel Buildings constructed. Crank Turns either way to make the blast. Each Turn of the crank produces 46 complete Revolutions of the Fan Wing.

No.	Hearth	Fan	Height	Weight	Code
401	18"	9"	30"	135 lbs.	Facanhoso
401½	22"	9"	30"	145 lbs.	Facoti
401½	24"	12"	30"	150 lbs.	Facturada

With Half Hood—Full or Closed Hood, extra.

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CHAMPION STEEL RIVET TOOLMAKERS' AND BOILERMAKERS' FORGES

Made with Adjustable Ball Bearings Only

Size of Hearth, 24 x 24 Inches

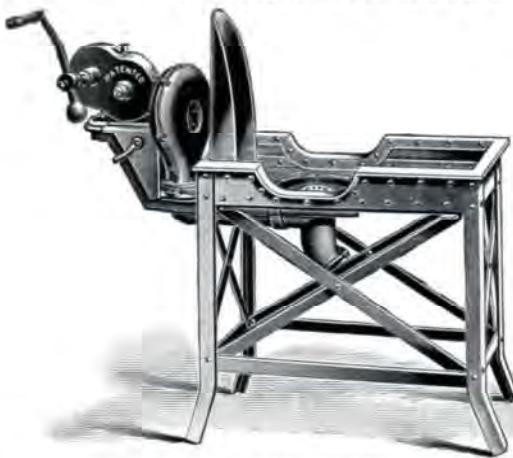
Size of Hearth, 30 x 30 x 6 Inches

Size of Hearth, 24 x 30 x 6 Inches

Fan, 9 Inches in Diameter

Fan, 12 Inches in Diameter

Fan, 12 Inches in Diameter



No. 404 with Shield

No.	Hearth	Fan
404	24 x 24"	9"
405	24 x 24"	9"
406	30 x 30 x 6"	12"
406 1/2	24 x 30 x 6"	12"
407	30 x 30 x 6"	12"
407 1/2	24 x 30 x 6"	12"

With water tank, extra

Champion Steel Forges are made of heavy steel with legs welded to the Hearth and thoroughly braced, making it a stiff and powerful forge large enough in Blast for most any work.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it seamless—therefore, rust proof and indestructible.

The Blower and all machinery can be taken off for transportation.

For further information as to the construction of machinery refer to pages 2 and 3.

Crank turns either way to make blast.

Each turn of the crank produces 46 complete revolutions of the Fan Wing.

It is especially adapted for Horseshoers, Garages, Toolmakers, Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, making repairs on Boilers, Oil Field Work, Steam and Elevated Railroads.

No.	Hearth	Fan	Height	Weight	Code
404	24 x 24"	9"	Wind Shield	30"	160 lbs. Facheabais
405	24 x 24"	9"	Half Hood	30"	175 lbs. Fachendon
406	30 x 30 x 6"	12"	Wind Shield	30"	270 lbs. Fachons
406 1/2	24 x 30 x 6"	12"	Wind Shield	30"	265 lbs. Freckled
407	30 x 30 x 6"	12"	Half Hood	30"	280 lbs. Fachplatte
407 1/2	24 x 30 x 6"	12"	Half Hood	30"	275 lbs. Frechsten

CHAMPION STEEL BLACKSMITHS' FORGES

Made with Adjustable Ball Bearings Only

Nos. 408, 409, 407 and 407 1/2 Champion Steel Blacksmiths' Forges represent the "Famous 400" Champion Steel Blower shown on pages 2 and 3, converted into a most complete and practical Blacksmiths' Forge.

These Forges have been universally adopted as the acme of success as a Blacksmiths' Forge. Their construction in Bracing and Bridging of angle steel for stiffness is perfection.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

These Forges are furnished regularly with No. 400 Champion "Whirlwind" Blast Anti-clinker Heavy Nest Tuyere Iron without extra cost.

It has the benefit received from the condensation of the heat to the center of the fire from the circular rotary Whirlwind Blast with no waste of heat going up the chimney, and will soon save enough in the cost of coal alone to pay for the Forge.

These Forges meet every demand from light up to the heaviest work.

Crank Turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

No.	Hearth	Fan	Height	Weight	Code
408	30 x 36 x 6"	12"	30"	300 lbs.	Fachsieb
409	30 x 40 x 6"	12"	30"	315 lbs.	Fachtofel
33	30 x 36 x 6"	12"	30"	220 lbs.	Falltrank
34	30 x 40 x 6"	12"	30"	235 lbs.	Falltuch

Horseshoers' Full Hood, extra

Water Tank, extra

No. 33 and 34 Forges are same as No. 408 and 409 Forges less Blower Head, Blower Arm and Pipe.



No. 408



CHAMPION CAST IRON BLACKSMITH FORGES

Size of Hearth, 28 x 40 Inches Size of Hearth, 32 x 45 Inches Fan, 12 Inches in Diameter
Made with Adjustable Ball Bearings Only

Champion Cast Iron Hearth Blacksmith Forges are large and supplied with a deep Coal Box which is entirely out of the way, keeping the coal in any degree of dampness.

The Blower used is the Famous 400 Champion "Patented" High-Speed Spiral-Geared Blower shown on pages 2 and 3.

The Forge is supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

The Blast of these Forges is sufficient for the heaviest as well as the lightest work and for use in Blacksmith shops, Garages, Machine shops, etc., and any special work.

Crank turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel, making a High Pressure White Heat Blast.

No.	Hearth	Fan	Weight	Code
433	32 x 45"	12"	400 lbs.	Fabagella
433A	28 x 40"	12"	325 lbs.	Fredame
11	32 x 45"		300 lbs.	Fallthor

Water Tank, Extra

No. 11 Forge same as No. 433 Forge less Blower Head, Blower Arm and Pipe



No. 433

CHAMPION LARGE CAST IRON FORGES

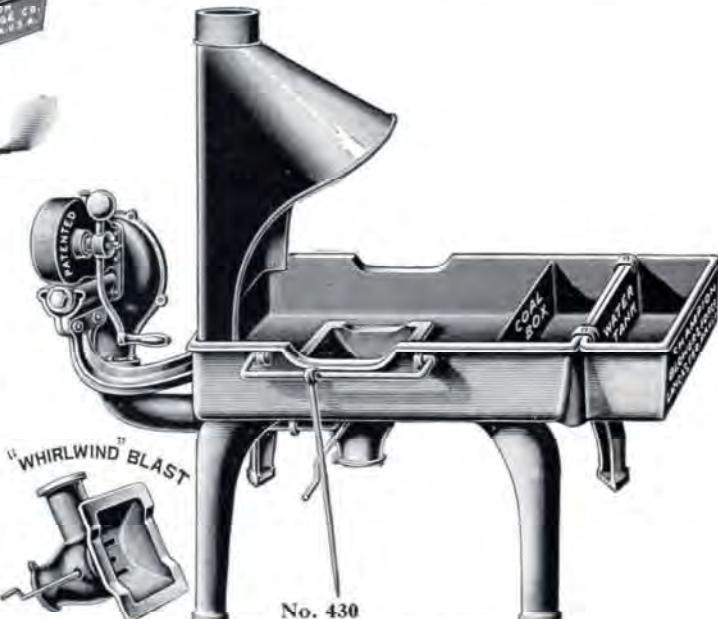
Made with Adjustable Ball Bearings Only

The Champion Large Cast Iron Blacksmith Forges represent the largest Blacksmith Forges built. For Railroad Shops, Plow Works, Heavy Wagon Works, and Blacksmith Shops making extra heavy work a specialty. The Hearths are built of cast iron and very heavy, that can be built up with fire brick, giving every advantage that can be had with a Forge built out of stone or brick. The Blower attached to these Forges is the Famous 400 Champion "Patented" High-Speed Spiral-Geared Blower illustrated on pages 2 and 3.

Supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	Hearth	Depth	Fan	Height	Weight	Code
430	38 x 42"	7"	12"	26"	535 lbs.	Faltamos
430½	38 x 42"	3½"	12"	26"	480 lbs.	Faltnut

With Water Tank, extra



No. 430

CHAMPION BOILERMAKERS' RIVET AND MACHINISTS' FORGES

With Cast Iron Hearth

Made with Adjustable Ball Bearings Only

No. 434 Champion Boilermakers' Forge, with shield, is supplied with the No. 400 Champion "Patented" High-Speed Spiral Geared Blower as shown on pages 2 and 3. Size of hearth makes it a large Forge for Boilermakers, Bridge Builders, Ship Builders, Railroad Shops, Tank Builders, and Garages. It is guaranteed to supply sufficient blast for welding 4-inch iron in ten minutes with great ease.

No. 435 Champion Machinists' Forge is the same as the No. 434 Forge with Half Hood. For Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers.

No. 437 Champion Rivet Forge is a desirable Forge for Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, Boilermakers, Bridge Builders, Elevated Railroads, etc. Crank Turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Fan Wheel.

No. 438 Champion Toolmakers' Forge is the same as the No. 437 Forge, with Half Hood.

No.	Hearth	Fan	Wind Shield	Height	Weight	Code
434	23 x 35"	12"	Wind Shield	30"	225 lbs.	Fabalibus
435	23 x 35"	12"	Half Hood	30"	245 lbs.	Fabaries
11 1/4	23 x 35"		Half Hood	30"	164 lbs.	Falcolotto
437	22"	9"	Wind Shield	33"	170 lbs.	Fabbrie
438	22"	9"	Half Hood	33"	195 lbs.	Fabelhaft

No. 11 1/4 Forge same as No. 438 less Blower Hose, Blower Arm and Pipe.



No. 435



No. 437



CHAMPION LANCASTER GEARED BLOWERS

Trade Mark Registered
No. 146,439, Sept. 6, 1921



No. 40L

The Champion Lancaster Geared Blowers show improvement in general construction, which makes them the best low-priced blower that has ever been placed on the market.

The improvement consists of an increase in the size of the gear case, allowing larger gears and larger bearings, whereby the life of the blower is doubled, and the fan case is constructed heavier and stronger.

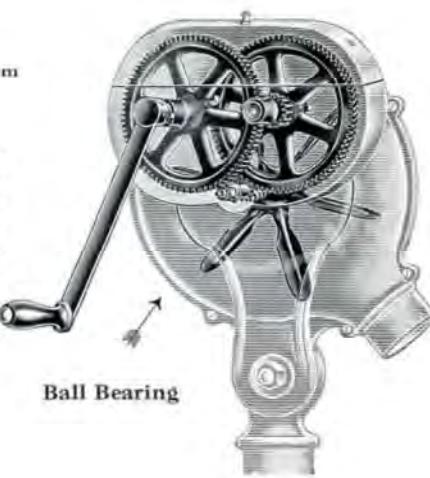
The Champion Lancaster Geared Blowers are well built, low priced, direct-driven blowers which meet the demand for a lower priced blower than the Famous 400 Champion "Patented" High Speed Spiral-Gear Blower, shown on pages 2 and 3. This Blower is supplied with the Champion Patent Adjustable Nozzle Tuyere Iron and Pipe complete. Extra large gears are used, all accurately cut, running in a bath of oil and all lubricated same as on our higher priced Blowers. The high speed spindle is equipped with ball bearing—the only Ball Bearing Blower at its price on the market. It is smooth running, with the crank turning either direction to make the blast.

No.	Fan	Weight	Code
40L Legs	12"	100 lbs.	Fabust
40½ Bench	12"	75 lbs.	Fabustem



No. 40½

The No. 40 Champion Lancaster Gearing is large and accurately cut. All the higher speed gears are helical cut, insuring smooth easy running. The shafts are bushed, permitting replacement if wear develops in any bearing at a nominal cost, without discarding the entire Blower. The high-speed shaft is equipped with ball bearing, insuring easy running.



Ball Bearing



CHAMPION LANCASTER GEARED BLACKSMITH FORGES

Size of Hearth, 32 x 45 Inches

Size of Hearth, 28 x 40 Inches

Fan, 12 Inches in Diameter

Champion Lancaster Geared Blacksmith Forges are well-built, direct-drive Blacksmith Forges with Cast Iron Hearth which has been built to meet the demand for cheaper Forges.

The Blower and Gearing used on these Forges are precisely the same as the No. 40 Blower shown on page 7.

The Tuyere Iron used on this Forge is a Heavy Nest Ball Tuyere Iron, weighing 50 lbs.

It therefore represents complete, well-built Blacksmith Forges at a very reasonable price.



No. 41

CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth, 23 x 35 Inches

Fan, 12 Inches in Diameter

No. 43 Champion Lancaster Geared Agricultural Forge is the same in its direct gearing for making blast as the No. 40 Lancaster Geared Blower, page 7. This makes a well-built, low-priced, direct-drive forge; a good blast producer and is recommended for farmers' use. It is well finished in every respect with a large size hearth and fan, and is a suitable Agricultural Forge where a direct-drive forge of these dimensions is required.

No. 42 Champion Lancaster Geared Direct-Drive Agricultural Forge is the same as No. 43, except that it has a shield in place of a half hood.

No.	Hearth	Fan	Height	Weight	Code
43	23 x 35"	12"	30"	215 lbs.	Fabrefacto
42	23 x 35"	12"	30"	200 lbs.	Fabriker



No. 43

CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

With Shield

Size of Hearth, 22 Inches

Fan, 10 Inches in Diameter

No. 45 Champion Lancaster Geared Agricultural Forge with shield is a suitable direct-drive forge for Farmers, Garage and general use where a well-built, cut-geared, low-priced, good blast producer is desired. The gearing for making blast is similar to the No. 40 Lancaster Geared Blower, page 7. It is a strong light forge for all kinds of portable work. It can be easily carried about and makes the best low-priced rivet forge ever manufactured for heating or preheating with coal or charcoal.

No. 46 Champion Lancaster Geared Agricultural Forge with half hood is the same in construction and finish as No. 45, except that it is supplied with half hood in place of shield, making it suitable for tempering tools and inside work in garages and elsewhere.

No.	Hearth	Fan	Weight	Code
45	22"	10"	135 lbs.	Fabaraz
46	22"	10"	145 lbs.	Fabison



No. 45



CHAMPION LANCASTER GEARED RIVET FORGES

Size of Hearth, 18 Inches

Fan, 10 Inches in Diameter

No. 48 Champion Lancaster Geared Rivet Forge is a moderate priced forge with Ball Bearings on the high speed shaft. This Steel Forge is supplied with the Lancaster Geared Blower used and shown on Forge No. 45, shown on page 8, making it a very convenient, light and serviceable Rivet Forge at a moderate price.

For further particulars as to gearing and construction of this Blower, read description of No. 40 Blower on page 7.

No.	Hearth	Fan	Height	Weight	Code
48	18"	10"	30"	110 lbs.	Fabo
48A	22"	10"	30"	120 lbs.	Faboter
48B	24"	10"	30"	125 lbs.	Fabotest

With half hood, extra



No. 48

CHAMPION LANCASTER GEARED ARMY AND NAVY FOLDING FORGE

Size of Hearth, 18 x 22 x 7 Inches

Fan, 10 Inches in Diameter



No. 49 Champion Lancaster Geared Army and Navy Folding Forge is of the latest design, with the legs, tuyere pipe and blower head detachable, yet when assembled—rigidly attached in their proper position. When the loose parts are detached and packed in the case, they are firmly held in place, withstanding any amount of rough handling without breakage. This Forge is equipped with pressed steel handles to lift the forge about. The Gearing is the same type as the Lancaster Geared Blower, shown on page 10, equipped with helical high-speed gearing, making it the best low-priced Folding Forge on the market.

No.	Hearth	Fan	Height	Weight	Code
49	18 x 22 x 7"	10"	28"	110 lbs.	Franker

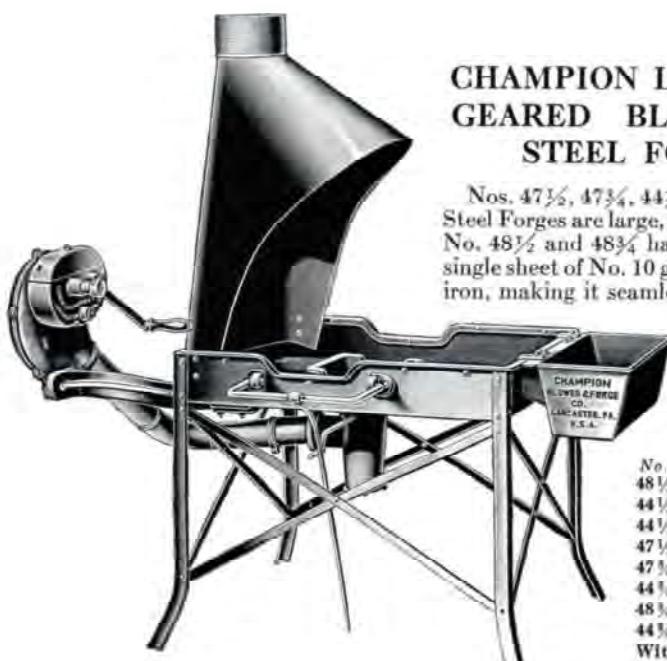


No. 49

CHAMPION LANCASTER GEARED BLACKSMITH STEEL FORGES

Nos. 47½, 47¾, 44¾, and 44¾A Champion Lancaster Geared Blacksmith Steel Forges are large, substantially built Forges with Heavy Nest Tuyere Iron. No. 48½ and 48¾ have Tuyere like No. 48 Forge. Hearth is formed from a single sheet of No. 10 gauge steel plate, with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it seamless—therefore, rust proof and indestructible; with legs securely riveted and substantially braced to the hearth.

The Blower is the No. 40 Blower with a Heavy Nest Tuyere Iron, making an excellent low-priced Blacksmith Forge.



No. 47½

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No.	Hearth	Fan	Height	Weight	Code
48½	24 x 24 x 6"	12"	Wind Shield	30"	170 lbs.
44½	30 x 30 x 6"	12"	Wind Shield	30"	295 lbs.
44¾	24 x 30 x 6"	12"	Wind Shield	30"	265 lbs.
47½	30 x 36 x 6"	12"	Half Hood	30"	300 lbs.
47¾	30 x 40 x 6"	12"	Half Hood	30"	315 lbs.
44¾	30 x 30 x 6"	12"	Half Hood	30"	300 lbs.
48¾	24 x 24 x 6"	12"	Half Hood	30"	185 lbs.
44¾A	24 x 30 x 6"	12"	Half Hood	30"	275 lbs.

With water tank, extra

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CHAMPION EUREKA GEARED BLOWER NO. 140

48 Revolutions of Blast Wheel to One Turn of Crank

The Champion Eureka Geared Blower is built to meet the demands of the small blacksmith and farmer, who desires a low-priced blower producing a blast sufficient for all needs.

This blower is built with high-speed helical gearing, giving 48 revolutions of the blast wheel to one turn of the crank, and the gearing is enclosed in a dust-proof, oil-tight, rigid cast iron gear case. It is smooth running, with crank turning either direction to make the blast.

It is furnished with a Ball Tuyere Iron and pipe complete.



No. 140

CHAMPION PROSPECTORS', MINERS' AND TOOL CHEST FORGE NO. 27



The Champion Prospectors', Miners' and Tool Chest Forge for Prospectors and Miners is compact, light in weight and convenient without sacrificing a first class blast. The blower is run by direct gearing and the tuyere iron is connected to the blower by piping, making it a strong and substantial Forge. With the legs folded the blower and tuyere iron are in a straight line making it convenient to strap to a burro for Prospectors or in a tool chest.

The various cuts show how the Blower can be set up to a clay hearth under different conditions.

No.	Fan	Weight	Code
27	8"	40 lbs.	Fabaray



No.
10
20
30
50
75
100
150

Champion Cast Anvils are made of the very highest grade, tough cast iron, with face chilled and ground to an extremely smooth finish. These anvils are made in seven sizes, weighing approximately 10, 20, 30, 50, 75, 100 and 150 pounds each.

	Machined Surface	Hardie Surface	Round Hole	Weight
10	4"	7 3/4"	5 1/2" x 2 1/2"	none
20	5 1/2"	10"	6" x 2 1/2"	none
30	6 1/2"	11"	7 1/4" x 2 1/2"	none
50	7 1/2"	15"	8 3/4" x 2 1/2"	none
75	8 1/2"	18 1/2"	11 1/2" x 3"	50 lbs.
100	8 1/2"	20"	12 3/4" x 3 1/2"	75 lbs.
150	11 1/2"	25 1/2"	15 1/4" x 4"	100 lbs.

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CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.

NO. 140 CHAMPION EUREKA GEARING SHOWN IN DETAIL

The No. 140 Champion Eureka Gearing is spur cut on the slow speed shaft and helical on the high speed gear and pinion, making it noiseless and easy running throughout with greater speed to the fan shaft per turn of the crank. The High Speed shaft runs on the ball thrust at the end of the shaft. All gears are set in a cast-iron, dust-proof gear case, insuring rigidity not found in any other style at equal price.



No. 60 Blower

NO. 60 HAND-DRIVEN FANS

for

Forges, Furnaces, Gas Producer Plants, and Ventilating Galleries, Underground Passages through manholes, cellars, and ship holds, etc.

All Gears machine cut, high speed gears are helical. Gear ratio is 48 to 1. Blast wheel is carefully balanced, giving large blast with few revolutions. Can be used as an Exhauster as well as a Blower. Made in four sizes. Heavy Tuyere extra.

No. 60A. Diameter fan case, 6"; outlet, 1 1/2"; weight 10 lbs. Code—Sorat.

No. 60A. Diameter fan case 8"; outlet, 2"; weight, 15 lbs. Code—Sorbat.

No. 60B. Diameter fan case, 10"; outlet, 2 1/2"; weight, 22 lbs. Code—Sorbus.

No. 60C. Diameter fan case, 12"; outlet, 3"; weight, 30 lbs. Code—Sorcier.

CHAMPION EUREKA GEARED FORGES

With Cast Iron Hearth

48 Revolutions of Blast Wheel to One Turn of Crank

Size of Hearth, 23 x 30 Inches
 Size of Hearth, 20 x 26 Inches
 Size of Hearth, 18 x 20 Inches



No. 142

The large size hearth makes it very desirable for Machinists, Garages, Farmers, etc., or any place where a good commodious forge is desired.

No.	Hearth	Fan		Height	Weight	Code
142	23 x 30"	10"	Windshield	30"	140 lbs.	Gaber
143	23 x 30"	10"	Half Hood	30"	145 lbs.	Gabest
242	20 x 26"	10"	Windshield	30"	115 lbs.	Gameor
243	20 x 26"	10"	Half Hood	30"	120 lbs.	Gamanate
104	18 x 20"	8"	Half Hood	30"	90 lbs.	Gambit

Fan, 10 Inches in Diameter

Fan, 10 Inches in Diameter
 Fan, 8 Inches in Diameter



No. 143

CHAMPION EUREKA GEARED FORGES

With Cast Iron Hearth

48 Revolutions of Blast Wheel to One Turn of Crank

Diameter of Fan, 8 Inches



No. 147

Size of Hearth, 22 Inches

Champion Eureka Geared Forges are larger in hearth than is usually put on low-priced forges.

These Improved Forges are equipped with a cut-gear, crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth, easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof, giving modern advantages making them especially desired for general medium light work, such as Repairers, Garages, Farmers, etc.



No. 145

Size of Hearth, 18 Inches

No.	Hearth	Fan		Height	Weight	Code
147	22"	8"	Wind Shield	30"	80 lbs.	Gaten
148	22"	8"	Half Hood	30"	82 lbs.	Gataf
145	18"	8"	Wind Shield	30"	70 lbs.	Game
146	18"	8"	Half Hood	30"	72 lbs.	Gaman

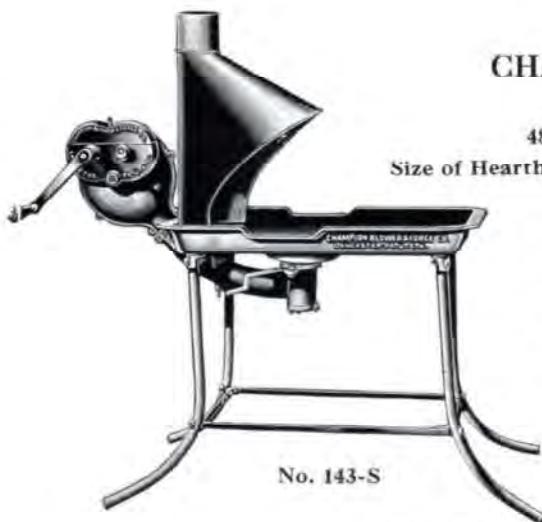


CHAMPION EUREKA GEARED FORGES With Pressed Steel Hearth

48 Revolutions of Blast Wheel to One Turn of Crank

Size of Hearth, 24 x 35 x 3 Inches

Fan, 12 Inches in Diameter



No. 143-S

No. 143-S Forge with Half Hood for indoor work is a good light-weight, medium-sized steel forge.

The Gears are cut and lay in a bath of oil, in an oil-tight, dust-proof gear case.

Crank turns either direction to produce blast, and these Forges are silent running and durable.

These Forges are supplied with Heavy Nest Ball Tuyere Iron, so a large fire can be produced to take bar work.

The above size Forge can be supplied with two different blower heads.

No.	Head	Hearth	Hood	Fan	Height	Weight	Code
143S	140	24 x 35 x 3"	Half Hood	12"	30"	145 lbs.	Frent
142S	140	24 x 35 x 3"	Shield	12"	30"	140 lbs.	Frenas
43S	40	24 x 35 x 3"	Half Hood	12"	30"	155 lbs.	Freakish
42S	40	24 x 35 x 3"	Shield	12"	30"	150 lbs.	Fraus

CHAMPION EUREKA GEARED FORGES

With Pressed Steel Hearth

48 Revolutions of Blast Wheel to One Turn of Crank
Diameter of Fan, 8 Inches



No. 147-S Forge

Size of Hearth, 24 Inches

Champion Eureka Geared Forges are well-made, roomy, low-priced Forges for garage, machine shop, ranch or farm trade for general use. Are equipped with a cut-gearied, crank-driven Blower—helical gears being used to give smooth running and noiseless operation. All gears run in a dust-proof, oil-tight gear case, which is cast iron—lining the gears up true, as there is no give like a steel gear case. Has double bearing supports to each end of the shaft and the high-speed shaft is equipped with ball end thrust bearing, eliminating friction. Hearths are pressed steel—made of heavy gauge. Forge legs are bolted to heavy hearths and braced at bottom, making the best all around low-priced Forges on the market.

No. 135-S Forge has short legs, proving an extremely convenient Forge for prospectors.



No. 145-S Forge

Size of Hearth, 18 Inches



No. 4145S

CHAMPION ELECTRIC STEEL FORGES FOR HOMECRAFT SERVICE AND GENERAL REPAIR WORK

Sturdy Motor, without radio interference.

Blast regulated by damper on intake.

Toggle Switch for starting and stopping, on fan case.

Ten feet of Cord, and attachment plug, furnished.

Pipe Legs, fully braced, used to guarantee rigid foundation.

Motor for 110 volts, 60 cycles, single phase, only.

No.	Hearth	Size	Half Hood or Shield	Fan	Ht.	Wt.	Code
4142S	Steel	24x35"	Shield	10"	30	145	Sorgen
4143S	Steel	24x35"	Half Hood	10"	30	150	Sorgho
4147S	Steel	24"	Shield	8"	30	52	Sotaina
4148S	Steel	24"	Half Hood	8"	30	62	Sotaner
4145S	Steel	18"	Shield	8"	30	48	Sotaque
4146S	Steel	18"	Half Hood	8"	30	50	Soterro



No. 4143



CHAMPION MODERN PORTABLE FORGES

NEAT — COMPACT — STRONG — USEFUL



No. 1146S with Hand Blower



No. 1143S with Hand Blower



No. 1146SE with Electric Blower

Our neat popular-priced line, especially serviceable for Home Workshop, Schools, Industrial as well as Farm Trade.

The modern streamlined design and general efficiency and compactness of these forges, with the fuel storage space beneath the hearth of the forge is of particular advantage. The smaller sizes hold 100 lbs. of blacksmith coal or coke, the larger sizes up to 300 lbs. The upper door in the base receives the fuel, which feeds automatically to the lower storage reservoir; then fuel is removed as required from the lower door. This fuel storage space is compact and keeps the room in which the forge is used, neat and always clean.

Champion Eureka Cut-Gear Hand Blowers will furnish blast to heat iron 3" thick in ten minutes. Cut gears run in oil, in dust-proof, oil-tight gear cases—crank turns either direction—without noise or vibration.

Champion Electric Blowers have sturdy motor, without radio interference. Blast regulated by damper on intake side. Toggle switch for starting and stopping, on fan case—attachment cord and plug. Motor for 110 volts, 60 cycles, single phase, only.

No.	Hearth Size	Depth	Blower	Half-Hood or Shield	Fan	Height	Weight Pounds	Code
1145S Steel	18" Diam.	3"	Hand	Shield	8"	30"	70	Celatoris
1146S Steel	18" Diam.	3"	Hand	Half-Hood	8"	30"	75	Celature
1147S Steel	24" Diam.	3"	Hand	Shield	8"	30"	75	Celaureite
1148S Steel	24" Diam.	3"	Hand	Half-Hood	8"	30"	100	Celaverunt
1143S Steel	24" x 35"	3"	Hand	Half-Hood	10"	30"	185	Celavimus
1145SE Steel	18" Diam.	3"	Electric	Shield	8"	30"	70	Celavist
1146SE Steel	18" Diam.	3"	Electric	Half-Hood	8"	30"	75	Celdillas
1147SE Steel	24" Diam.	3"	Electric	Shield	8"	30"	75	Celebrable
1148SE Steel	24" Diam.	3"	Electric	Half-Hood	8"	30"	80	Celebrado
1143SE Steel	24" x 35"	3"	Electric	Half-Hood	10"	30"	185	Celebramas



CHAMPION DIRECT-CONNECTED ELECTRIC BLOWERS



No. 20. For One to Two Ordinary Fires
or for any purpose requiring 100 cu. ft. of air per minute, and 2 oz. pressure
Nos. 21, 121, 221, 321 to burn Buckwheat, Rice or
Barley Coal for heating.

No. 20 Champion Constant Speed Electric Blower is recommended for one to two fires, or as a Blower for similar blast requirements such as Dry Rooms, Refrigerators, Forced Draft for boilers, heating furnaces, for heating oil field bits or general Oil Field work; in connection with heating kettles for cooking candy, as well as for ventilation.

When used in connection with two forge fires, each forge must have a blast gate to regulate the blast each forge requires. The best results are obtained when the Blower is set as close as possible to the work it is intended to do and avoid sharp turns in piping.

No.	Height	Outlet	Inlet	R.P.M.	H.P.	Weight	Code
20	15"	3 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	3500	$\frac{1}{4}$	65 lbs.	Facar

NOTE: Above can be furnished as an Exhaust Fan if specially ordered.

Nos. 21, 121, 221, 321 Blowers are built for forced draft use in burning buckwheat and other small size coal, which reduces your coal bill one-half. Besides this saving, it produces complete combustion with less ashes and proper heat in the shortest possible time. They insure minimum consumption of coal and proper warmth.

No.	H. P.	Height	Width	Size Outlet	Cu. Ft. Air per Minute	Pressure Ounces	R. P. M.	Weight	Code
21	1/12	15"	12"	3 $\frac{1}{4}$ "	150	.8	1750	65 lbs.	Facarer
121	1/4	15"	14"	4 $\frac{1}{4}$ "	250	1	1750	90 lbs.	Faccio
221	1/3	18"	15"	5 $\frac{1}{2}$ "	400	1	1750	115 lbs.	Faccion
321	1/2	21 $\frac{1}{2}$ "	18"	6"	600	1 $\frac{1}{2}$	1750	160 lbs.	Fachear

For use with five square feet of grate surface

For use with ten square feet of grate surface

For use with fifteen square feet of grate surface

For use with twenty square feet of grate surface

CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 2. For One to Four Ordinary Fires
or for any purpose requiring 200 cu. ft. of air per minute, and
2 $\frac{1}{2}$ oz. pressure

No. 2 Champion Constant Speed Electric Blower has been on the market for many years with thousands in use and giving the highest degree of satisfaction.

We recommend this Blower for four forge fires, and will operate equally as well for producing blast for other purposes such as heating furnaces, forced draft in boiler rooms, furnishing fresh air for ventilation, Dry Rooms, Laundries, Oil Field work, Machine Shops; in fact, any place where air is required.

When used in connection with forge fires, each forge must have a blast gate to regulate the blast each forge requires.

The best results, of course, are obtained when the Blower is set as near to the work as possible and avoid sharp turns in the piping.

No.	Height	Outlet	Inlet	R.P.M.	H.P.	Weight	Code
2	15"	3 $\frac{1}{4}$ "	4 $\frac{1}{4}$ "	3500	$\frac{1}{4}$	70 lbs.	Factat

NOTE: Above can be furnished as an Exhaust Fan if specially ordered.



CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 3. For One to Six Ordinary Fires
or for any purpose requiring 350 cu. ft. of air per minute, and
3 oz. pressure

No. 3 Champion Direct-Connected Constant Speed Electric Blower goes out to those looking for a real delivery of blast; therefore, in attaching a Motor to a Blower, we had no hesitancy in selecting the Champion Steel Pressure type of Fan Case, as we knew full well that with the large motor we supply, it would give satisfaction.

No. 3 Champion Electric Blower will operate six forge fires, and can be used for many other purposes such as on small foundry cupolas, furnaces, forging shops, heating drill bits for oil field work, forced draft for steam boilers, supplying fresh air for ventilating, or forcing air long distance where strong pressure is desired, laundry and dry rooms.

When used in connection with forge fires, a blast gate is required on each forge to regulate the blast required by each forge.

The best results are obtained when Blower is set as near to the work as possible, avoiding sharp turns in the piping.

No.	Height	Outlet	Inlet	R.P.M.	H.P.	Weight	Code
3	20"	4 $\frac{1}{4}$ "	6"	3500	1 $\frac{1}{2}$	185 lbs.	Factat

NOTE: Above can be furnished as an exhaust fan if specially ordered.

Directions for Ordering Constant Speed Electric Blowers

1st—Is current direct or alternating.

2d—If alternating, find cycles, phase and voltage.

3d—60 cycles 110 or 220 volts furnished regularly.

4th—Other cycles or voltages are special.

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CHAMPION
BLOWER & FORGE CO.
* LANCASTER, PA. U.S.A.



THE CHAMPION VARIABLE SPEED ELECTRIC PRESSURE BLOWER

The Original Variable Speed Electric Blower

With totally enclosed regulator to comply with all National and
Local Underwriters' Requirements



The Blowers with the BIG MOTOR
have

Universal Motor for Both Alternating and Direct Current. Pressure from over 2,000 Revolutions Per Minute. Detached Totally Enclosed Regulator with Six Speeds, 10-foot Attachment Cord and Plug to attach to any Light Socket

Champion Variable Speed Electric Blowers are especially built for blowing forge fires, furnaces, organs, and any other work requiring efficient blast.

These Blowers have the fan-case designed the same as our Steel Pressure Blowers, made by us for over forty-eight years and with snail-shape fan-case are built for high-pressure blast and durability.

The motor has silk-covered wire of the best insulation, is built with hammered steel shaft, sealed ball bearing, commutator with twenty-four bars of hard drawn copper, and large flat brushes which are staggered so that one brush does not track after the other on the commutator, insuring thereby double wearing life to the commutator.

Over 400,000 Champion Electric Blowers already sold have given us valuable experience, which we are glad to extend to our customers.

- 1st. The great failure in motor building is in overrating capacity, not allowing anything for endurance.
- 2d. The CHAMPION uses all modern methods of electrical design, and furnishes a motor fully 40% above requirements in power capacity, therefore giving GIANT POWER, thus insuring full capacity and endurance.
- 3d. All Champion MOTORS are ball bearing and fully enclosed with sufficient units of power guaranteed to run the Blower at highest speed of over 2,000 revolutions per minute, and at high pressure open and away from the fire for 10 hours without a single stop.
- 4th. All Champion Motors are built from the very highest grade of materials, best workmanship, and machinery of the latest up-to-date designs employed in winding and manufacturing the motor.

No. 50. For Regular Fire 1100 to 2350 R.P.M.
Variable Speed Universal either 110V or 220V Motor.

Height	Outlet	Inlet	Weight	Code	R.P.M.	C.F.M.	S.P.	Height	Outlet	Inlet	Weight	Code	R.P.M.	C.F.M.	S.P.
15"	3"	3"	55 lbs.	Faces	2175	163	0	15"	3"	3"	70 lbs.	Faceor	2600	190	0
					2475	120	1						2750	156	1
					3000	89	2						2900	130	2
					3000	80	4						3500	87	4
					3450	6	5						3725	61	5
													4000	0	6

Note.—Above can be furnished as an Exhaust Fan if specially ordered.

If #50 or #51 blowers are to be used for continuous duty use constant speed blowers #21 for 1750 R.P.M. or #20 for 3450 R.P.M.



NO. 400 CHAMPION "WHIRLWIND" BLAST ANTI-CLINKER HEAVY NEST TUYERE IRON



For General Blacksmiths

A Tuyere Iron that makes a
"Whirlwind" Blast

Registered in U. S. Patent Office,
No. 49,691, Feb. 13, 1906

With Over One Million "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Irons sold in forty years, with every user ready to testify that it heats Iron one-third quicker, besides a great reduction in Coal Bills when figuring up profits at the end of the year's work, Explains Why:—

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is:—A Tuyere Iron true to its name; A Tuyere Iron that produces a circular, rotary blast; A Tuyere Iron that will not blow the heat or hot air up and out of the chimney; A Tuyere Iron from which less blast is wasted 6 inches above the Tuyere than 4 feet above any other Tuyere Iron; A Tuyere Iron that concentrates the blast and heat in the Tuyere Nest, thus makes a hotter fire and heats one-third quicker.

Don't delay installing the "Whirlwind" Blast in your fires as it saves at least one-half the heating elements of your coal pile from going up the chimney in waste.

The "Whirlwind" is no secret. We invite comparison. Hold your hand over the top of the "Whirlwind" Blast Tuyere when the blower is in blast and do the same with any other Tuyere Iron and you will immediately discover that less blast is lost 6 inches above the "Whirlwind" Blast Tuyere than 4 feet above any other Tuyere. It will pay to take the time to look this up.

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is supplied with a revolving pick to remove the clinkers out of the side slots, therefore, the slots can always be kept open without disturbing the fire from the top, assuring you at all times a full capacity of blast and guaranteeing a clean powerful fire.

No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is 5 inches deep, 8½ inches wide and 10½ inches long, over all 12½ x 14½ inches; Weight, 55 lbs. Code—Fabulonis.

CHAMPION HEAVY NEST TUYERE IRONS

No. 4 Champion Heavy Nest Tuyere Iron is intended for large fires of all kinds. It is also very desirable for Horseshoers. It requires no claying up. Its walls are heavy enough to withstand the hottest fires. Size of nest 3½ inches deep at lowest curve point. Sides are 5½ inches high. Length of nest 12 inches, with a width of 10 inches over the top.

No.	Over All Dimension	Inside Depth	Weight	Code
4	14½ x 13½"	5½"	70 lbs.	Fragent

CHAMPION PATENT ADJUSTABLE NOZZLE TUYERE IRON



No. 40



No. 4

No. 400B

No. 400B Champion Heavy Nest Ball Tuyere Iron is furnished with a center blast heavy nest, ball and rod. This is strictly a first-class Tuyere Iron and will give satisfaction wherever used.

No.	Over All Dimension	Inside Depth	Weight	Code
400-B	11½ x 14"	4"	50 lbs.	Fragelle

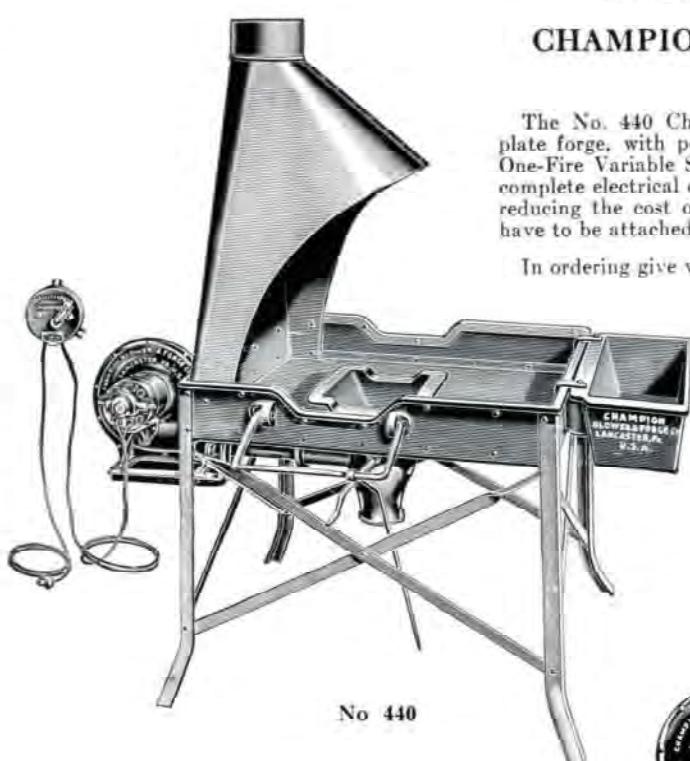
No. 40 Patent Adj. Nozzle Tuyere Iron; Weight 15 lbs.
Code—Facilitate.



CHAMPION ELECTRIC STEEL BLACKSMITH FORGE NO. 440

The No. 440 Champion Electric Driven Steel Forge represents a large steel plate forge, with perpendicular sides 6 inches high, with the Champion No. 50 One-Fire Variable Speed Electric Blower as shown on page 15, making it a very complete electrical outfit for those desiring a spacious steel-hearth forge; materially reducing the cost of a built-up brick hearth, to which an electric blower would have to be attached.

In ordering give voltage only.



No. 440

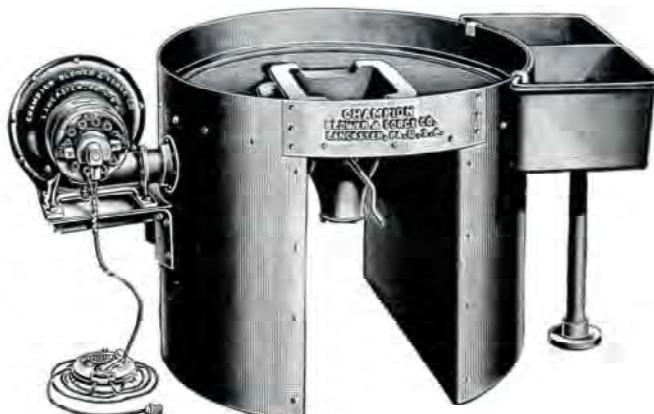
No.	Hearth	Height	Weight	Code
440	30 x 36"	30"	285 lbs.	Facture
449	30 x 40"	30"	300 lbs.	Facturater
453	24 x 24"	30"	270 lbs.	Facturatest
455	30 x 30"	30"	275 lbs.	Facturabus

With full hood, extra
With water tank, extra

CHAMPION ELECTRIC ROUND HEARTH STEEL FORGES

The Champion Electric Round Hearth Steel Forges are built of heavy steel plate with structural iron, attached to which is the No. 50 One-Fire Variable Speed Electric Blacksmith Blower, shown on page 15, and recommended for Railway Shops or any place where extra heavy work is desired. These Forges are all equipped with the "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

In ordering give voltage only.



No. 446

No.	Hearth	Height	Weight	Code
446	36"	30"	300 lbs.	Gamo
447	48"	30"	400 lbs.	Gad

With water tank, extra



No. 459

CHAMPION ELECTRIC STEEL RIVET FORGE NO. 459

No. 459 Champion Electric Steel Rivet Forge is built for Rivet and Shipbuilding Trade. The Motor is protected from the weather, enabling this Forge to remain in the open without the motor or starting rheostat sustaining any damage. The Blower is equipped with a Six-Speed Variable Speed Regulator, manipulated by handle attachment, as shown. The Hearth is exceptionally deep, permitting heating a large quantity of rivets at one time.

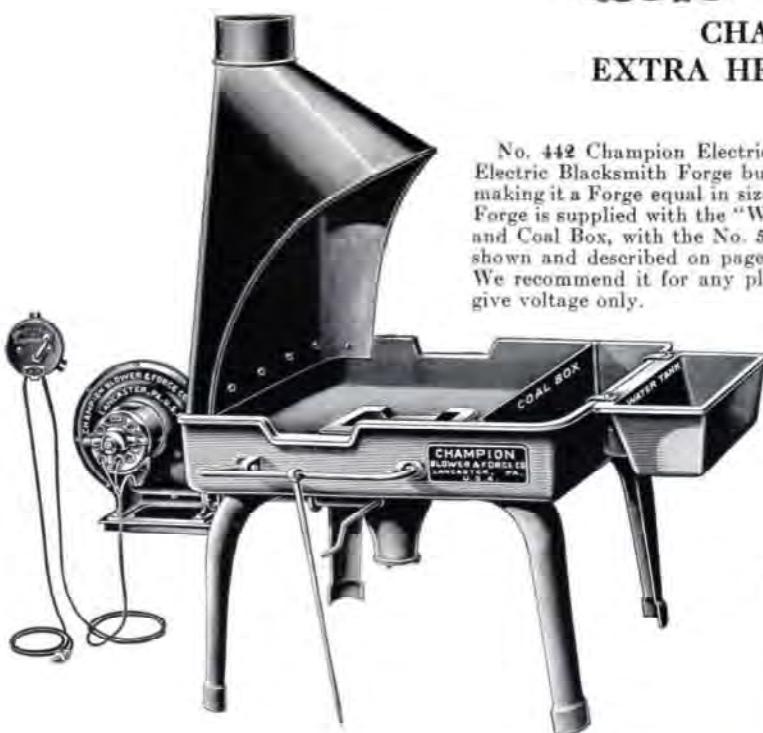
In ordering give voltage only.

No.	Hearth	Height	Weight	Code
459	18"	30"	120 lbs	Frost



CHAMPION ELECTRIC EXTRA HEAVY CAST IRON FORGE NO. 442

No. 442 Champion Electric-Driven Extra Heavy Cast Iron Forge is the largest Electric Blacksmith Forge built. The size of the hearth is 38 x 42 x 7 inches deep, making it a Forge equal in size to any stationary brick forge that can be built. This Forge is supplied with the "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and Coal Box, with the No. 51 Champion Variable Speed Electric Blower attached, shown and described on page 15, and in every respect built for extra-heavy work. We recommend it for any place where extra heavy work is expected. In ordering give voltage only.



No. 442

No.	Hearth	Blower	Height	Weight	Code
442	38 x 42 x 7"	51	26"	510 lbs.	Fustolina
442B	39 x 52 x 7"	51	26"	605 lbs.	Fustonar
442C	48 x 62 x 7"	51	26"	925 lbs.	Fustonast
442D	38 x 42 x 3½"	50	26"	490 lbs.	Fustonabt

With water tank, extra.



No. 441

CHAMPION ELECTRIC CAST IRON BLACKSMITH FORGE NO. 441

No. 441 Champion Electric Driven Cast Iron Forge represents a large hearth Forge with "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and Champion Patented Coal Box, with the No. 50 Champion One-Fire Variable Speed Electric Blower, as shown and described on page 15 attached, making a very complete and practical Electric Blacksmith Outfit for those desiring a roomy heavy cast iron forge. In ordering give voltage only.



No. 441

No.	Hearth	Height	Weight	Code
441	32 x 45"	30"	400 lbs.	Factavim
441½	28 x 40"	30"	300 lbs.	Facturant

With water tank, extra.

CHAMPION ELECTRIC CAST IRON MACHINISTS' FORGE NO. 443

No. 443 Champion Electric Driven Cast Iron Machinists' Forge represents a medium size Hearth Forge, with the No. 50 Champion One-Fire Variable Speed Electric Blower, shown and described on page 15, which makes a particularly good forge for garage use in heating and tempering. In ordering give voltage only.

No.	Hearth	Height	Weight	Code
443	23 x 35"	30"	250 lbs.	Fusamies

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CHAMPION STATIONARY BLAST FORGES



No. 12

The Champion Nos. 35, 36 and 36½ Round Steel Stationary Blast Forges are built from Heavy Steel Plate and Structural Steel. Where room is an object it often meets a demand no other Stationary Blast Forge can meet. They are supplied with the Champion Blast Gate, also No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron. The Telescopic Canopy Hood is the most satisfactory and complete Forge Hood that ever has been placed on a Forge. The fact that the Hood is counter-balanced by a cast iron ring around the pipe makes it easy to raise or lower, and will remain without fastening at any height desired by the mechanic.

No.	Hearth	Height	Weight	Code
35	36"	30"	250 lbs.	Fallugie
36	48"	30"	375 lbs.	Fallunt
36½	60"	30"	600 lbs.	Falzone

Water Tank, extra

Telescopic Hood, extra

No. 35 Champion Telescopic Canopy Hood, 36 In. in Diam.; Pipe, 9 In. in Diam., Maximum Length, 9 Ft. 2 In.; Minimum Length, 6 Ft. 10 In.; Weight, 100 lbs. Code—Fallwild.

No. 36 Champion Telescopic Canopy Hood, 42 In. in Diam.; Pipe, 9 In. in Diam.; Maximum Length, 9 Ft. 2 In.; Minimum Length, 6 Ft. 10 In.; Weight, 110 lbs. Code—Fallsur.

No. 36½ Champion Telescopic Canopy Hood, 54 In. in Diam.; Pipe, 9 In. in Diam.; Maximum Length, 10 Ft.; Minimum Length, 7 Ft.; Weight, 150 lbs. Code—Falsiclen.

Nos. 12, 12½, 13½ and 11½ Champion Stationary Blast Forges are made Extra Heavy for all kinds of blacksmith fires,—far superior to building a forge of brick or stone. These Forges are made for power but can be used for hand, or electric blower as well. They are supplied with the Champion Blast Gate, Water Tank and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

No.	Hearth	Height	Depth	Weight	Code
12	38 x 42"	26"	7"	400 lbs.	Faint
12½	39 x 52"	26"	7"	500 lbs.	Falated
13½	48 x 62"	26"	7"	720 lbs.	Falchion
11½	38 x 42"	26"	3½"	350 lbs.	Frager

With Half Hood, extra
Downdraft Hood, extra



No. 35



No. 38

The Champion Nos. 38, 39 and 39½ Square Steel Stationary Blast Forges are built for the Heaviest shop work possible out of Heavy Steel Plate and Structural Steel. They are well adapted for railroad shops and shipyards. They are supplied with a Champion Blast Gate and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	Hearth	Height	Weight	Code
38	42 x 42"	25"	375 lbs.	Fagot
39	54 x 54"	25"	415 lbs.	Faror
39½	72 x 72"	25"	550 lbs.	Faralous

With Water Tank, extra.



CHAMPION STATIONARY DOWN DRAFT FORGES



No. 202DD

No. 202DD Champion Stationary Down Draft Forge is one of the most popular types for Manual Training Service.

The hearth is cast iron, heavy and rigid, the base is constructed of steel. The No. 400 Champion Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron is used. Furnished with blast gate, coal box and water tank.

No.	Hearth	Height	Depth	Weight	Code
202DD	27 x 36"	29"	33 $\frac{1}{8}$ "	552	Famish



No. 202DDD

No. 202DDD is a double forge with two Tuyeres and hoods, especially adaptable where compactness is essential.

No.	Hearth	Height	Depth	Weight	Code
202DDD	59 x 36"	29"	33 $\frac{1}{8}$ "	975	Famished

Champion

NEW · ORIGINAL
FORGE SHOP



A COMPACT WORKSHOP IN ONE UNIT FOR WORKING IRON, SHEET METAL, ALUMINUM OR BRASS. COMPLETE AND READY TO USE. FOR HOME WORKSHOP, HOBBYIST FARM AND FACTORY.

CONSTRUCT—Metal Chairs, Tables, Benches, Magazine Racks, Trellises, Railings, Weather Vanes, Signs, Firetools, and many other interesting household articles. All tools and equipment necessary come with unit ready to run.

COMPLETE AT ONE PRICE.

FORGE SHOP TOOLS

FORGE—Forge is used to heat metal of all kinds in order to bend, flatten or shape. Use regular smithing charcoal for fire to prevent smoking indoors.

VISE— $3\frac{1}{2}$ " steel jawed machinist vise with generous anvil and horn. Equipped with cut-off hardie. Vise swivels 180° and is conveniently mounted next to forge.

DRILL PRESS—A 14" 2 speed $\frac{1}{2}$ " capacity drill press v-belt driven from electric motor. Drill can be swung radially around over vise in order to drill work clamped in vise or swung over floor to drill big work.

SPECIFICATIONS: 58 $\frac{1}{2}$ " high, 38" wide, 28" deep. Equipped with heavy duty $\frac{1}{8}$ hp 110 volt single phase motor, cord, and plug to drive forge blower, grinder and drill press. Smoke pipe and exhaust blower extra if required. Shipping Wt. 240 lbs.

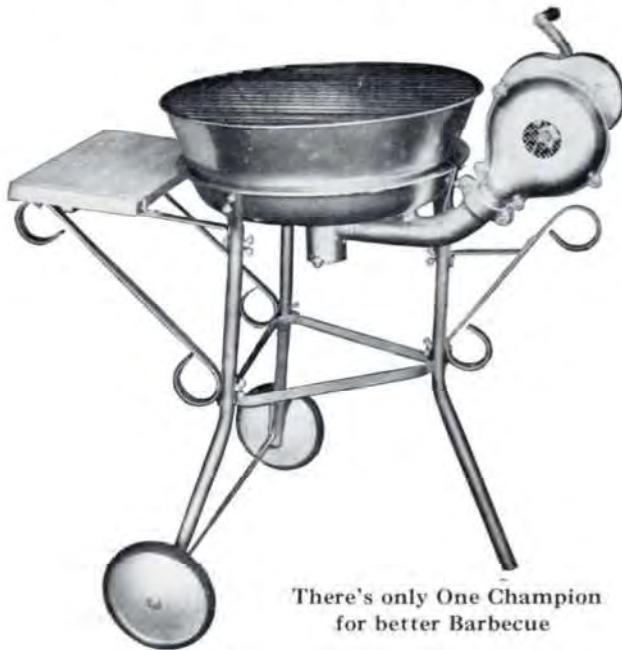
GRINDER—Double bronze bearing v-belt driven by electric motor. Guarded at one end for grinding open at other end for polishing. Comes with 6 x $\frac{1}{2}$ " grinding wheel, wire wheel, polishing wheel and cut-off wheel.

SHEAR—3" lever type shear. Capacity $\frac{3}{4}$ " x $\frac{1}{8}$ " flat iron $\frac{1}{8}$ " round or suitable for notching or slitting sheet metal up to 14 gauge in steel, aluminum or brass.

HAND TOOLS—consisting of fire tongs, Ball pein hammer, cut-off wheel, wire wheel, set of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " steel taps and drill bits to match, one routing high speed steel burr, tap wrench and round anvil for use in vise. Instruction manual with unit.



Champion PORTABLE BARBECUE BROILER GRILL



There's only One Champion
for better Barbecue

No unnecessary preparations to start the fire, simply roll up a piece of newspaper and light it. Pour on the charcoal and turn the crank on the blower. Within two minutes you will have a broiling fire, thus eliminating the necessity of using kindling wood, kerosene, or other items to start a charcoal fire. If you desire to sear the food in order to seal in the juices, simply turn the crank on the blower several times and the resulting hot fire will do the work. Otherwise, when the blower is not in operation, a steady uniform fire will burn in the hearth and cook the food to perfection.

Champion Barbecue Grills are equipped with a solid skirt or shield around the fire, so that no draft or breezes will blow the heat from under the cooking grill, thus saving charcoal and allowing the heat to be concentrated evenly all over the food on the grill.

Champion Barbecue Grills are equipped with a 18" x 9" hardwood carving table on which to prepare the meats. This hardwood table will not dull a knife as a metal table will and will not become scuffed, scarred, or rusty from knife marks.

The Champion Barbecue Grill is equipped with wheels so that it can be moved around the yard and taken indoors as desired. It is put together with wing nuts so that it can be easily disassembled and stowed away in small quarters. The entire unit is finished with heat-resisting aluminum paint. The blower produces a hot fire on a moment's notice and the crank is easily turned in either direction to produce the draft.

FISH AND BEEF—Fish, steaks, and roasts we recommend cooking directly on the grill with a moderately hot fire.

FOWL—Chickens and other fowl should be split in half and cooked with the inside or rib side towards the fire for approximately one-half hour after which turn the fowl over with the meat side down for 10 to 15 minutes. There is no need to go through the long laborious task of using a spit.

DOGGIES AND HAMBURGERS—Children like to cook their own doggie on a fork directly in the fire. Hamburgers must be started in a pan in order to prevent them from breaking up and can be put on the open grill to obtain the charcoal taste after cooking.

CORN—We recommend cooking corn in the husks directly on the grill covering it with a wet burlap and from time to time rewetting the burlap.

POTATOES—Potatoes should be laid around the edge of the hearth in the coal bed before starting the fire. They will then be gradually roasted directly in the fire.

No. 3145-SW Champion Portable Barbecue Broiler Grill with rubber tired wheels and 22" diameter cooking grill weighs crated 68 pounds.

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CHAMPION
BLOWER & FORGE CO.
* LANCASTER, PA. U.S.A.



CHAMPION
ADJUSTABLE
THREE-JAW
GEARED
CHUCK
No. 100



Takes straight shank bits from 0 to $\frac{1}{4}$ inch.

Jaws are hardened and each jaw works in union with each other, thereby holding bits central.

Diameter of Champion Chuck $2\frac{1}{2}$ inches; length over all $3\frac{1}{2}$ inches.

The taper hole in Champion Chuck can be fitted with any size arbor: $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, or No. 1, No. 2, No. 3, or No. 4 Morse Taper, as ordered. No. 100 Champion Three-Jaw Chuck, Weight, 1 lb. Arbors $\frac{1}{4}$ -inch or $\frac{1}{2}$ -inch shank, as ordered. Arbors to fit No. 1, No. 2, No. 3 or No. 4 Morse Taper, as ordered.

CHAMPION SELF-FEED
BENCH DRILL NO. 104
Made with Ball Bearings

No. 104 Bench Drill is unusually low priced. All bearings ground out of the solid metal. Has lathe-turned and slotted table. Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

Has two speeds for hand drilling.

SPECIFICATIONS

Drills to center of 12-inch circle. Drills holes from 0 to $\frac{1}{4}$ inch. Spindle, $\frac{1}{2}$ inch in diameter; has up-and-down run of 3 inches. Greatest distance from table to spindle, $7\frac{1}{2}$ inches. Greatest distance from spindle to base, $11\frac{1}{2}$ inches. Height over-all, 32 inches. Spindle bored like Champion Never-Slip Chuck, for $\frac{1}{4}$ inch shank drill bits; if specially ordered, to take $\frac{1}{2}$ inch shank bits. Weight, 70 lbs. Code—Fecond.

No. 104C Bench Drill, same as No. 104 Bench Drill, except equipped with 3-Jaw Chuck, taking straight shank bits up to $\frac{1}{4}$ inch. Code—Fecondair.



CHAMPION SELF-FEED
POST DRILL No. 108

Made with Ball Bearings

No. 108 Champion Post Drill is a low-priced, light-weight Drill, with moderate capacity.

Spindle has end-thrust Ball Bearings, which save 50% in power.

Has adjustable one-piece, slotted Table, which may be raised or lowered seven inches.

Flywheel $6\frac{1}{2}$ inches in diameter with $\frac{1}{2}$ inch face; grooved to take a V-belt; also can be used with a $1\frac{1}{2}$ inch flat belt.

Has Adjustable Crank—one revolution of which makes three revolutions of the fly wheel.

SPECIFICATIONS

Drills to center of 8" circle. Drills from 0 to $\frac{1}{4}$ inch.

Spindle $\frac{1}{2}$ inch in diameter, has up-and-down run of $1\frac{1}{2}$ inches.

Greatest distance from Table to spindle 8". Height of drill 26 inches. Spindle bored to take $\frac{1}{4}$ inch straight shank drill bits if specially ordered, to take $\frac{1}{2}$ inch.

Weight, 29 lbs. Code—Fasque.



ABOVE DRILLS FURNISHED WITH A TURNED FLY WHEEL FOR V OR FLATBELT FOR POWER

CHAMPION SELF-FEED
POST DRILL NO. 103

Made with Ball Bearings

No. 103 Champion Post Drill is the lowest priced Back-Geared Self-Feed Post Drill built.

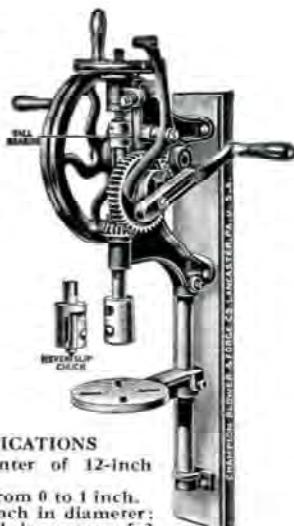
Spindle has end-thrust ball bearings which save 50% in power, and are made from the highest grade lathe-turned Tool Steel.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore, all parts are standard and interchangeable.

Has two speeds for hand drilling.

No. 1000 Utility Drill is a low-priced, Back-Geared, Self-Feed Post Drill same as No. 103 Drill described above, equipped with an Adjustable Three-Jaw Chuck.



SPECIFICATIONS

Drills to center of 12-inch circle. Drills holes from 0 to 1 inch.

Spindle, $\frac{1}{2}$ inch in diameter, has up-and-down run of 3 inches.

Greatest distance from table to spindle, $8\frac{1}{4}$ inches.

Height of drill, $31\frac{1}{2}$ inches. Spindle bored like Champion Never-Slip Chuck to take $\frac{1}{2}$ inch straight shank drill bits; if specially ordered, to take $\frac{1}{2}$ inch. Weight, 60 lbs. Code—Fasicher.

CHAMPION SELF-FEED
MOTOR DRIVEN
POST DRILL
No. 110

Made with Ball Bearings

No. 110 Champion Motor Driven Post Drill is same as No. 103 Drill described above with $\frac{1}{2}$ HP Electric Motor 110 volt A.C. and V Belt in one complete unit as illustrated. Weight, 85 lbs. Code—Fablinto.

CHAMPION SELF-FEED POST DRILL
No. 98 and No. 101

Made with Ball Bearings

No. 98 and 101 Champion Post Drill has two speeds for hand drilling.

Spindle has End Thrust Ball Bearings.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

End Thrust Ball Bearings save 50 per cent in power and are made from the highest grade of lathe-turned tool steel.

Spindle bored like Champion Never-Slip Chuck to take $\frac{1}{2}$ inch Straight Shank Drill Bits. If specially ordered, to take $\frac{1}{2}$ inch.

SPECIFICATIONS NO. 98

Drills to the center of a 14-inch circle. Drills from 0 to $1\frac{1}{4}$ inch hole.

Spindle, 1 inch in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 40 inches. Weight, 95 lbs. Code—Fearless.

SPECIFICATIONS NO. 101

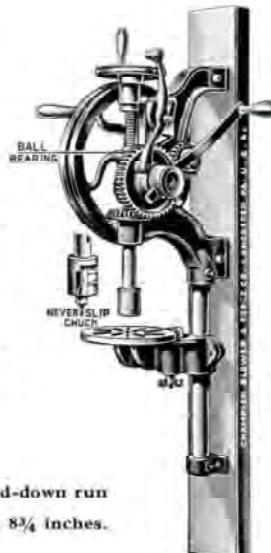
Drills to the center of 12-inch circle. Drills from 0 to 1-inch hole.

Spindle, $\frac{1}{2}$ inch in diameter has up-and-down run of 3 inches.

Greatest distance from table to spindle, $8\frac{3}{4}$ inches.

Height of drill, 35 inches.

Weight, 75 lbs. Code—Fesapo.





CHAMPION SELF-FEED POST DRILL NO. 93 $\frac{1}{2}$ and No. 90

Made with Ball Bearings. Has two speeds for hand drilling

No. 93 $\frac{1}{2}$ and No. 90 Champion Self-Feed Post Drills are high grade back geared Drills.

They have two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS NO. 93 $\frac{1}{2}$

Drills to the center of a 15-inch circle.

Drills from 0 to 1 $\frac{1}{4}$ -inch hole.

Spindle 1 $\frac{1}{2}$ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 46 inches.

Spindle bored like Champion Never-Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered, to take $\frac{1}{4}$ inch.

Weight, 110 lbs. Code—February.

SPECIFICATIONS NO. 90

Drills to the center of a 14 $\frac{1}{2}$ -inch circle.

Drills from 0 to 1 $\frac{1}{4}$ -inch hole.

Spindle, 1 $\frac{1}{2}$ inches in diameter has up-and-down run of 3 inches.

Greatest distance from table to spindle, 10 inches. Height of drill, 43 inches.

Spindle bored like Champion Never-Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered, to take $\frac{1}{4}$ inch.

Weight, 100 lbs. Code—February.

CHAMPION THREE-GEARED SELF-FEED POST DRILL NO. 95, No. 96 and No. 4

Made with Ball Bearings

No. 95, No. 96 and No. 4 Champion Self-Feed Three-Geared Ball Bearing Post Drills are stocky in design. Have three gears to give second speed same turning direction of the crank as the first speed.

All Bearings are ground out of the solid metal.

No Babbitt used on the Drills.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Have Automatic Self-Feed.

Lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

No. 96 Champion Automatic Quick-Return Self-Feed Post Drill stands without a rival in its class in the markets of today.

The Quick-Return Lever is thrown into place while the Drill continues in motion, where it remains until the bit is raised out of the work and automatically stops.

SPECIFICATIONS NO. 95

Drills to the center of a 16-inch circle.

Drills from 0 to 1 $\frac{1}{4}$ -inch hole.

Spindle 1 $\frac{1}{2}$ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 10 inches. Height of drill, 46 inches.

Spindle bored like Champion Never-Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered, to take $\frac{1}{4}$ inch.

Weight, 110 lbs. Code—Feenland.

SPECIFICATIONS NO. 96

Drills to the center of a 15 $\frac{1}{2}$ -inch circle.

Drills holes from 0 to 1 $\frac{1}{2}$ inches.

Spindle 1 $\frac{1}{2}$ inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 9 $\frac{1}{4}$ inches. Height of drill, 46 inches.

Spindle bored like Champion Never-Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered, to take $\frac{1}{4}$ inch.

Weight, 135 lbs. Code—Frather.

SPECIFICATIONS NO. 4

Drills to the center of an 18-inch circle.

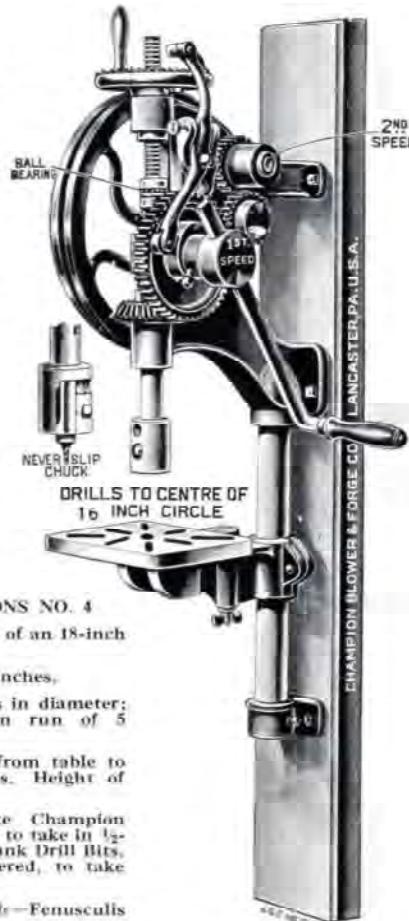
Drills from 0 to 1 $\frac{1}{2}$ inches.

Spindle 1 $\frac{1}{2}$ inches in diameter; has up-and-down run of 5 inches.

Greatest distance from table to spindle 15 inches. Height of drill, 54 inches.

Spindle bored like Champion Never-Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered, to take $\frac{1}{4}$ inch.

Weight, 200 lbs. Code—Fenusculis

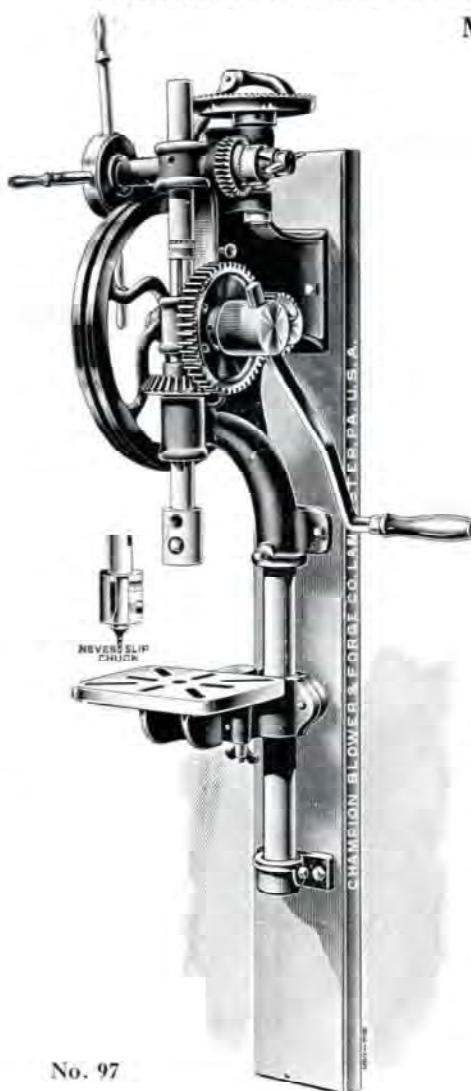


ABOVE DRILLS FURNISHED WITH A TURNED FLY WHEEL FOR V OR FLAT BELT FOR POWER

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CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILLS MADE WITH BALL BEARINGS



No. 97

No. 97 Champion Self-Feed and Hand-Feed Quick-Return Drill on lathe speeds has the Propeller Wheel Hand-Feed and Self-Feed independent of each other and for quick work the hand-feed acts as the quick return for the Drill Bit.

A capital drill for garages and battery service stations.

The End Thrust Ball Bearings save 50 per cent in power.

It has three gears, giving second speed same turning direction as first.

It has lathe-turned and slotted table.

It is furnished with a turned fly wheel for V or Flat-Belt for Power.

SPECIFICATIONS

Drills to the center of 17-inch circle.

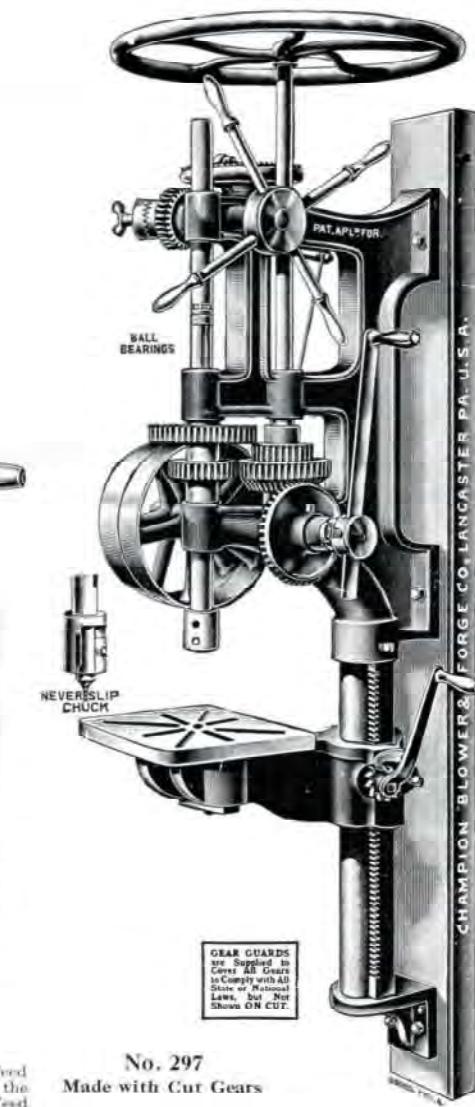
Drills holes from 0 to 1 1/4 inches.

Spindle, 1 1/4 inches in diameter; has up-and-down run of 5 1/2 inches.

Greatest distance from table to spindle, 12 1/2 inches. Height of drill, 50 inches.

Spindle bored like Champion Never-Slip Chuck to take in 1/2-inch Straight Shank Drill Bits. If especially ordered, to take 1 1/2-inch.

Weight, 165 lbs. Code—Feeze.



No. 297
Made with Cut Gears

Nos. 297 and 397 Champion Self-Feed and Hand-Feed Quick-Return Drills represent a large and powerful Drill, equipped with both self-feed and hand-feed. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. The hand-feed acts as a quick return for the drill bit. The Upright Fly-Wheel Shaft runs on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly-wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by sliding the cut gears. The Table is raised and lowered by a Rack and can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent, in power. It has lathe-turned and slotted table.

SPECIFICATIONS NO. 297

Spindle, 1 1/4 inches in diameter; has up-and-down run of 9 inches. Drills holes up to 1 1/2 inches.

Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.

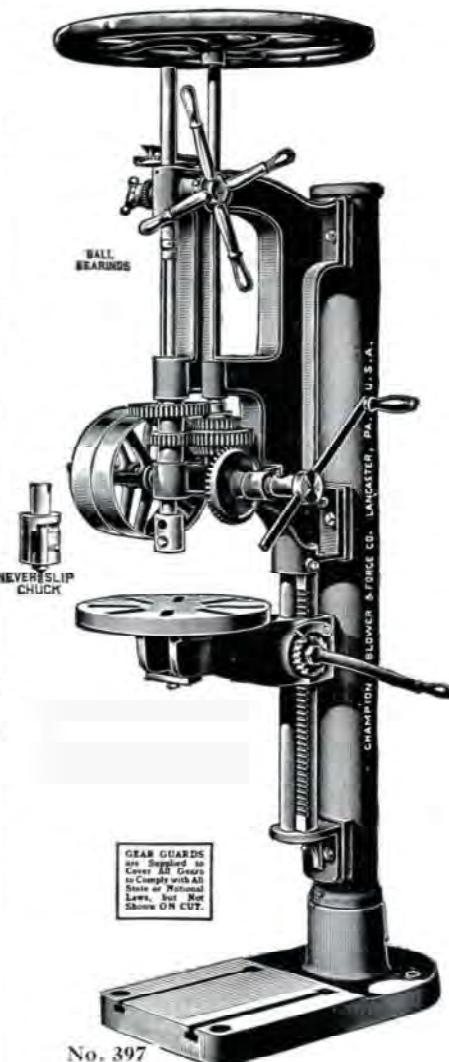
Spindle bored like Champion Never-Slip Chuck to take 1 1/2-inch Straight Shank Bits. If especially ordered, to take 1 1/2-inch.

Drills to the center of a 24-inch circle.

Weight, 425 lbs. Code—Fide.

No. 297P Drill, with Tight and Loose Pulleys, 11 inch Diameter and 2 1/2-inch Face, for Hand and Power Combined. Speed, 80 R.P.M. Weight, 435 lbs. Code—Fibit.

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No. 397
Made with Cut Gears

SPECIFICATIONS NO. 397

Spindle, 1 1/4 inches in diameter; has up-and-down run of 9 inches. Drills holes up to 1 1/2 inches.

Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.

Spindle bored like Champion Never-Slip Chuck to take 1 1/2-inch Straight Shank Bits. If especially ordered, to take 1 1/2-inch.

Drills to the center of a 24-inch circle.

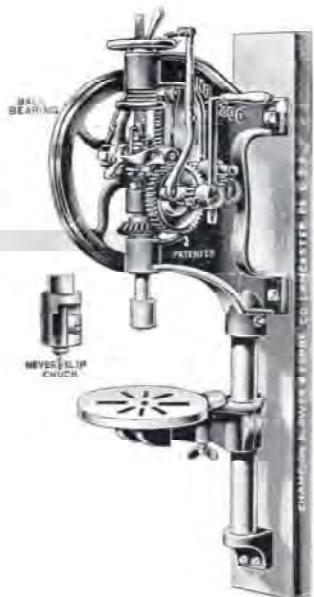
Weight, 760 lbs. Code—Fride.

No. 397P Drill, with Tight and Loose Pulleys 11 inch Diameter and 2 1/2-inch Face, for Hand and Power Combined. Speed, 80 R.P.M. Weight, 785 lbs. Code—Fribit.

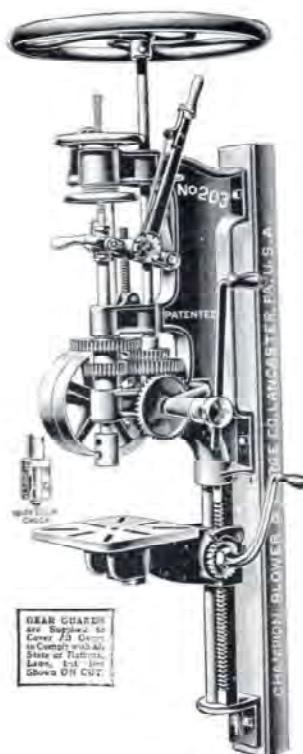


CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED DRILLS

MADE WITH BALL BEARINGS



No. 200



No. 203
Made with Cut Gears



No. 203 1/2
Made with Cut Gears

The above line of Combination Automatic Self Feed and Double Compound Lever Feed Drills produces 80% more pressure at the point of drill bit than any other Drills. The Self Feed and Lever Feed are both independent of each other and are changed from one to the other in a fraction of a second. With either feed the Drill Spindle has instantaneous return of the Drill bit out of the hole drilled and again returned to the material for the next hole. They have two speeds, lever specially convenient for wood boring.

201, 203, 203 Elec., 203 1/2, 203 1/2 Elec. Drills all have Rack and Pinion to raise and lower the tables.

Capacity	Distance								H.P.	Weight	Code
	Circle Center	Up & Down Run	Table to Spindle	Dia. Spindle	Height Drill	Spindle hole					
200	1 1/4	16	4	11	1 1/4	51°	1 1/2			195	Faldfee
200 1/2	1 1/2	18	4	12	1 1/4	55°	1 1/2			260	Falucha
201	1 1/2	21	5 1/2	17	1 1/4	68°	1 1/2			405	Faldstool
203	1 1/2	21	5 1/2	19	1 1/4	72°	1 1/2			435	Falasca
203 Elec.	1 1/2	21	5 1/2	19	1 1/4	72°	1 1/2	1/2	1/2	665	Fädedra
203 1/2	1 1/2	21	5 1/2	20	1 1/4	80°	1 1/2			625	Faltasinha
203 1/2 Elec.	1 1/2	21	5 1/2	20	1 1/4	80°	1 1/2	1/2	1/2	740	Fapelar

Extra for tight & loose pulleys.



CHAMPION No. 2400 24-INCH BALL-BEARING BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

Champion new No. 2400 Ball-Bearing Back-Geared Floor Drill is accurate ball bearing throughout for all around light, medium and heavy work up to $1\frac{1}{2}$ " capacity. V Belt Drive for any make 1750 RPM Motor. Gear and Pinions are cut scientifically accurate running quiet at all speeds—25 to 680 RPM with 3 speeds on Power Feed. V Belt Driven fully guarded but easily accessible to change speeds.

Automatic stop can be set to feed spindle fast, medium or slow to any determined depth. Lever Feed, Wheel or Power Feed changed instantly for general all around drilling from small to largest hole. Table and base are accurately machined with T Slots in both table and base. We recommend this drill as an accurate all around general purpose ball bearing drill for smallest to $1\frac{1}{2}$ " capacity.



SPECIFICATIONS

Height of Drill, 79"
Distance between table and spindle, 28 $\frac{1}{2}$ "
Distance between spindle and base, 44"
Distance from column to center of spindle, 12 $\frac{1}{4}$ "
Diameter of Column, 5 $\frac{1}{4}$ "
Travel of Table on Column, 21"
Diameter of Table, 18 $\frac{3}{4}$ "
Eight Spindle Speeds
 Direct 130-220-390-680
 Back gears 25-45-72-120
Diameter of Spindle, 1 $\frac{1}{4}$ "

Traverse of Spindle, 12"
The Power Feed per revolution of spindle for various steps on Power Feed .002, .005, .008
Hole in Spindle to fit standard No. 4 Morse Taper
Floor Space required, 18 $\frac{1}{2}$ " x 36"
Horsepower required, 1 $\frac{1}{2}$ H.P.
Weight, 1250 lbs.
No. 2400 with V Double Belt Drive with 1 $\frac{1}{2}$ H.P. Motor current and voltage as ordered.
Can be furnished less Motor with 2 V Belts and Motor Pulleys—any bore to fit your Motor.
Champion No. 2400 Drill can be furnished with Positive Gear Feed if so ordered.



CHAMPION 2200 BACK-GEARED UPRIGHT V-BELT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

THE NEW IMPROVED CHAMPION 2200 BACK-GEARED POWER DRILL, COMPLETELY V-BELT DRIVEN THROUGH-OUT combines all modern features in many ways excels the higher-priced drills. Constructed to withstand heavy work, as well as light, rapid drilling. Built to take in wide range of work, making it the best all-round machine shop, manufacturing or garage drill on the market for general work.

The crown gear $6\frac{1}{8}$ inches in diameter and 4-inch diameter pinion are larger and heavier than usually found on drills of this size, and all gears are generated scientifically accurate, insuring silent running and long life.

The spindle is carbon steel, ground to a micrometer fit, graduated and equipped with frictionless ball bearings. In addition to ball bearings in the spindle thrust, this drill has ball bearing under the crown gear. These thrust ball bearings are equipped with retainers, packed with grease, that keep the walls automatically oiled three months, and with the bronze bushing in the head will outwear any other drill on the market.

The drill base is bored out and the column pressed in, accurately aligning the base with the spindle. The table is aligned perfectly with the spindle and the table arm is clamped with two clamps, insuring a rigid table, so accurate work can be done.

The drill is completely v-belt driven—from motor to countershaft are dual v-belts. Between countershaft and top drive shaft are a pair of 4 step heavy duty v-belt pulleys. Power feed is v-belt driven with quick change attachment.

The top bearing is 7 inches long and constructed so that wear can be taken up when necessary. The lower v-belt pulley bearings are bronze—another exclusive Champion feature.

Has three feeds—lever feed, wheel feed and power feed, with three speeds on the power feed, eight spindle speeds—changed from plain drill to back-geared drill by merely sliding the back gears in with lever attached.

The automatic stop will knock off the power feed at any desired depth; the spindle being graduated so that any hole 12 inches deep down to any fraction of an inch can be drilled without measuring the depth of the hole.

Quick-return handle gives rapid movement to the spindle. The spindle is counterbalanced with weight in hollow column, connected by cable chain all enclosed. Has quick-acting screw to raise and lower the table. The gears are covered with guards and worm gear on power feed runs in a continuous bath of oil.

This drill is adapted for automobile repair shops as it will re bore automobile or tractor cylinder with one setting of the motor.



Without guards



Complete with guards

SPECIFICATIONS

- Back Geared, Power Feed and Automatic Stop.
- Swings to center of 22-inch circle.
- Height of drill, 77 inches.
- Column diameter, $5\frac{1}{4}$ inches.
- Table diameter, 18 inches.
- Vertical travel on column, 21 inches.
- Spindle diameter in sleeve, $1\frac{15}{16}$ inches.
- Spindle travel, 12 inches.
- Eight Spindle Speeds—405, 235, 138, 80, 73, 42, 25, 15 R.P.M.
- Distance between table and spindle, $27\frac{3}{4}$ inches.
- Distance between spindle and base, 48 inches.
- Distance from column to center of spindle, 11 inches.
- Power Feeds per revolution of spindle for various belt steps on power feed .002, .005, .008.
- Hole in spindle bored to fit No. 4 Morse Taper.
- Base has T slots.
- Three distinct complete feeds—power feed, wheel feed and lever feed.
- 2200 Electric V-Belt Drive Drill with 1 H.P., Motor current and voltage as ordered, Weight 1150 lbs. Code Figilnose.
- Can be furnished less Motor with 2 V-Belts and double V Motor Pulley, any bore to suit your Motor.
- Spindle speeds—8 with use of back gears.
- Capacity—drills 0 to $1\frac{1}{2}$ inches.
- Diameter of crown gear, $6\frac{1}{8}$ inches.
- Diameter of bevel pinion, 4 inches.
- Pitch of crown gear and pinion gear, 6. Crown gear, 40 teeth. Pinion gear, 21 teeth.
- Bearings split on upper shaft are 7 inches long.
- Phosphor bronze bearings in head.
- Floor space, 16 x 46 inches.
- H.P. required—1 H.P.

Champion 2200 Back-Geared Upright Power Drill can be furnished with Positive Gear Feed if so ordered

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CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.



CHAMPION 24-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP



V-Belt Motor Driven

The 24-Inch Back-Geared Power Drill is constructed to withstand heavy work, as well as light and rapid drilling, making the best all-round drill on the market for general repair or manufacturing purposes.

This Drill has been especially designed for reboring cylinders on Ford Motor Cars, as well as Fordson Tractor cylinders, as the spindle has a 12-inch up-and-down run, and with this exceptionally long traverse of the spindle enables the user to rebore cylinders from top to bottom of practically all makes of Motor Car Cylinders on one setting, thus enabling the operator to do a class of work which heretofore required a 25-inch Drill, meaning an expenditure of almost double the cost of this Drill.

The brace being placed between the center of cone pulleys makes a rigid connection from top of drill to base, eliminating vibration.

The Crown Gear runs in a Phosphor Bronze Bushing of the highest grade, and the Crown Gear is also equipped with an End Thrust Ball Bearing, which reduces the friction and eliminates the wearing of upper end of Crown Gear Bearing, thus insuring easier running and durability.

The Spindle is graduated and is ground to a micrometer fit and equipped with frictionless ball bearings. All Gears are machine cut scientifically accurate, which insures silent running and long life. The long split bearings on top of horizontal shaft allow for taking up wear when necessary. The Drill is made with Planed Square Base, having T slots to enable heavy work to be held firmly to base. The base is constructed with a pocket on each side and front to retain oil or drippings from tool lubrication. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

The change from plain to back-geared Drill is done in an instant by a movement of the eccentric shaft.

Has eight speeds with three distinct and complete feeds: Power Feed, Hand Wheel Feed and Lever Feed. Has Automatic Stop with quick-return lever giving rapid movement to Spindle. Spindle is counterbalanced by special cable chain attached to weight in column. Has quick-acting screw for raising and lowering table. Drills with perfect accuracy from smallest holes up to 1 1/2-inch.

SPECIFICATIONS

Height of drill, 76 inches.

Distance between table and spindle, 27 1/2 inches.

Distance between spindle and base, 43 inches.

Distance from column to center of spindle, 12 1/4 inches.

Diameter of column, 5 1/4 inches.

Traverse of table on column, 21 inches.

Diameter of table, 18 inches.

24" Electric V-belt drive with 1 H.P. Motor current and voltage as ordered. Weight 1190 lbs. Code: Fledmas.

Can be furnished less Motor with 2 V Belts and Double V Motor Pulley any bore to suit your Motor.

Can be furnished Electric Gear Driven if preferred to V-Belt Drive, Weight 1200 lbs, with Motor. Code: Finjan.

24" Back-Geared Belt Driven Drill with tight and loose pulleys 8" x 2 3/4" to run at 300 R.P.M., as illustrated. Weight: 1025 lbs. Code: Figad.

Eight Spindle Speeds—405, 255, 138, 80, 73, 42, 25, 15 R.P.M.

Diameter of spindle, 1 1/4 inches.

Traverse of spindle, 12 inches.

The Power Feeds per revolution of spindle for the various steps on power feed, .002, .005, .008.

Hole in spindle bored to fit Morse Taper No. 4.

Size of cone pulleys (4-step), 4, 5 3/4, 7 1/2, 9 x 2 in. face.

Floor space required, 19 1/2 x 47 inches.

Horse Power required, 1.

Champion 24-inch Back-Geared Upright Power Drill can be furnished with Positive Gear feed if so ordered.



Belt Driven

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CHAMPION
BROWERY & FORGE CO.
* LANCASTER, PA. U.S.A.



CHAMPION 21-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

THE NEW IMPROVED CHAMPION 21-INCH BACK-GEARED POWER DRILL combines all modern features, in many ways excels the higher-priced drills. Constructed to withstand heavy work, as well as light, rapid drilling. Built to take in wide range of work, making it the best all-round machine shop, manufacturing or garage drill on the market for general work.

The crown gear $6\frac{1}{2}$ inches in diameter and 4-inch diameter pinion are larger and heavier than usually found on drills of this size, and all gears are generated scientifically accurate, insuring silent running and long life.

The spindle is carbon steel, ground to a micrometer fit, graduated and equipped with frictionless ball bearings. In addition to ball bearings in the spindle thrust, this drill has ball bearing under the crown gear. These thrust ball bearings are all equipped with retainers, packed with grease, that keep the walls automatically oiled three months, and with the bronze bushing in the head will outwear any other drill on the market.

The drill base is bored out and the column pressed in, accurately aligning the base with the spindle. The table is aligned perfectly with the spindle and the table arm is clamped with two clamps, insuring a rigid table, so accurate work can be done.

The brace between the top and bottom countershaft stiffens the drill, so that when the heaviest work is done, both the upper and lower cone pulleys are held rigidly in position.

The top bearing is 7 inches long and constructed so that wear can be taken up when necessary. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

Has three feeds—lever feed, wheel feed and power feed, with three speeds on the power feed, eight spindle speeds—changed from plain drill to back-geared drill by merely sliding the back gears in with lever attached.

The automatic stop will knock off the power feed at any desired depth; the spindle being graduated so that any hole 12 inches deep down to any fraction of an inch can be drilled without measuring the depth of the hole.

Quick-return handle gives rapid movement to the spindle. The spindle is counterbalanced with weight in hollow column, connected by cable chain all enclosed. Has quick-acting screw to raise and lower the table. The gears are covered with guards and worm gear on power feed runs in a continuous bath of oil.

This drill is adapted for automobile repair shops as it will reboore automobile or tractor cylinder with one setting of the motor.



V-Belt Motor Driven



Belt Driven

SPECIFICATIONS

Back Geared, Power Feed and Automatic Stop. Swings to center of $21\frac{1}{2}$ -inch circle. Height of drill, 77 inches. Column diameter, $5\frac{1}{4}$ inches. Table diameter, 18 inches. Vertical travel on column, 21 inches. Spindle diameter in sleeve, $1\frac{1}{8}$ inches. Spindle travel, 12 inches. Eight Spindle Speeds—405, 275, 138, 80, 73, 42, 25, 15 R.P.M. Distance between table and spindle, $27\frac{1}{4}$ inches. Distance between spindle and base, 43 inches. Distance from column to center of spindle, $10\frac{1}{4}$ inches. Power Feeds per revolution of spindle for various cone steps on power feed .002, .005, .008. Size of cone pulleys (4-step) 4, $5\frac{3}{4}$, $7\frac{1}{2}$, 9 x 2-inch face. Hole in spindle bored to fit No. 4 Morse Taper. Base has T slots. Three distinct complete feeds—power feed, wheel feed and lever feed.

21" Electric V Belt Drive Drill with 1 H.P. Motor current and voltage as ordered. Weight 1150 lbs. Code: Figlinos. Can be furnished less Motor with 2 V-belts and double V Motor Pulley, any bore to suit your Motor. Can be furnished Electric Gear Driven if preferred to V Belt Drive. Weight 1150 lbs. Code: Finiron.

21" Back-Geared Belt Driven Drill with tight and loose pulleys $8\frac{1}{2}$ x $2\frac{3}{4}$ to run at 300 R.P.M. as illustrated. Weight 950 lbs. Code: Figlin. Spindle speeds—8 with use of back gears. Capacity—drills 8 to $1\frac{1}{2}$ inches. Diameter of crown gear, $6\frac{1}{2}$ inches. Diameter of bevel pinion, 4 inches. Pitch of crown gear and pinion gear, 6. Crown gear, 40 teeth. Pinion gear, 21 teeth. Bearings split on upper shaft are 7 inches long. Phosphor bronze bearings in head. Floor space, 16 x 46 inches. H.P. required—1 H.P.

Champion 21-inch Back-Geared Upright Power Drill can be furnished with Positive Gear Feed if so ordered

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CHAMPION
BLOWER & FORGE CO.
* LANCASTER, PA. U.S.A.



CHAMPION No. 2100 BACK-GEARED UPRIGHT ELECTRIC DRILL WITH LEVER, WHEEL POWER FEED AND AUTOMATIC STOP

THE MODERN CHAMPION 21-INCH BACK-GEARED ELECTRIC DRILL combines all the up-to-date features incorporated in the highest price drills and represents one of the most improved 21" drill presses on the American market. This drill is constructed to withstand the heaviest type of working as well as light and rapid drilling. Therefore, it is the best all round drill press for machine shop, tool room, general manufacturing use on the market.

The Crown Gear and pinion are larger and heavier than usually used on drills of this size. All gears are scientifically and accurately cut for quiet running and long life.

Spindle is carbon steel ground to micrometer fit, graduated and equipped with ball thrust bearings.

The Crown Gear runs on ball bearings and in a phosphor bronze bushing at the head of the drill. The drill throughout is equipped with high grade bearings designed for long life. The main bearings are split so adjustment can be made to take up wear.

This Drill is equipped with three distinct power feeds either through changing a V-belt or through positive gear reduction changed by manual lever.

Spindle has three distinct feeds—either power, lever or wheel feed. The power feed is automatically disengaged by a disengaging collar on the spindle which can be set to the desired drilling depth.

The drill is also equipped with a variable speed device operating by hand wheel giving an infinite number of spindle speeds from 25 R.P.M. to 535 R.P.M.

These speeds are indicated by an easily visible automatic pointer which points directly to the speed marked plainly on a large name plate in front of the operator's eyes. This complete range of speeds beside using the hand wheel is obtained by use of the back gear lever which when engaged produces the lower half of the speed range indicated on the name plate and when disengaged, produces the upper half.

The table has T slots as well as holes for clamping the work. Table is run up and down the drill column by means of a crank geared to a steel rack through a pair of reduction gears which makes lowering and raising very easy. Table and table arm are also provided with 3 clamps which will lock it in any position.

A large well-balanced heavy floor base is provided with T slots and an oil groove.

The motor is controlled by push button station with overload protection mounted on the face of the drill back, easily accessible to the operator.

This drill represents the latest modern streamline development with all operating controls and levers easily accessible to the operator and all working parts enclosed for safety and protection against dirt and dust.



SPECIFICATIONS

Swings to center of 21 1/2 inch circle.
Height of drill, 82 1/2 inches.
Column diameter, 5 1/4 inches.
Table diameter, 18 1/2 inches.
Vertical travel on column, 21 inches.
Spindle diameter in sleeve, 1 1/8 inches.
Spindle travel, 9 3/4 inches.
Distance between table and spindle, 27 3/4 inches.
Distance between spindle and base, 43 inches.

Distance from column to center of spindle, 10 3/4 inches.
Power Feeds per revolution of spindle for various cone steps on power feed, .002, .005, .008.
Hole in spindle bored to fit No. 4 Morse taper.
Base has T slots.
Three distinct complete feeds—power feed, wheel feed and lever feed.
Spindle speeds—
25—100 back gears in.
130—535 back gears out.

Capacity—drills 0 to 1 1/2 inches.
Diameter of crown gear, 6 5/8 inches.
Diameter of bevel pinion, 4 inches.
Pitch of crown gear and pinion gear, 6.
Crown gear, 40 teeth.
Pinion gear, 21 teeth.
Bearings split on upper shaft are 7 inches long.
Phosphor bronze bearings in head.
Floor space, 19 1/2 x 35 inches.
H.P. required—1 1/2 H.P.
Weight, 1200 lbs.

Champion 2100 Back-Geared Upright Power Drill can be furnished with Positive Gear Feed if so ordered.

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CHAMPION
BLOWERS & FORGE CO.
LANCASTER, PA. U.S.A.



CHAMPION NO. 2000 HIGH SPEED DRILL

Swings to Center of 20-inch Circle



A high-grade full ball-bearing production drill up to 1" capacity.

A stocky direct V-belt drill, has six speeds, taking a large range of work.

Table raises and lowers with crank, all gears being enclosed.

Table tilts to any angle up to 45 degrees and can be swung out of the way.

Drill-head is clamped to ground column, can be raised or lowered or swung completely around.

Table has four slots and base two T-slots.

Depth gauge for drilling can be set to drill any depth desired up to 5".

Spindle is graduated in $\frac{1}{16}$ ", and is bored for No. 3 Morse Taper Shank Bits.

Belt Guard is hinged, light and strong. Opens from side.

Drill can be equipped with either 1-H.P. ball-bearing motor for capacity up to 1", or 1/2-H.P. ball-bearing motor for capacity up to $\frac{3}{4}$ " and Switch; or can be furnished less motor.

Height.....	68 in.	Diameter of spindle.....	$\frac{3}{8}$ in.
Six speeds—340, 620, 1170, 1750, 2365, 3080 R.P.M. with 1750 R. P. M. Motor.		Traverse of spindle.....	5 in.
Distance spindle to table.....	27 in.	Diameter of column.....	$3\frac{1}{2}$ in.
Distance spindle to base.....	$43\frac{3}{4}$ in.	Machined base.....	$15\frac{1}{4}$ in. x $12\frac{1}{4}$ in.
Distance from column to center spindle.....	$10\frac{1}{2}$ in.	Base overall.....	28 in. x $16\frac{1}{2}$ in.
Size of table.....	$14\frac{1}{2}$ in. x $12\frac{1}{4}$ in.	Weight with 1-H. P. motor, 680 lbs.	Code—Celadus
Table raises and lowers.....	18 in.	Weight with $\frac{1}{2}$ -H. P. motor, 600 lbs.	Code—Cebabunt
		Weight less motor, 525 lbs.	Code—Celerentes

No. 16F and 16B CHAMPION DELUXE DRILL

The Latest Design 16" Production Utility and Tool Room Drill of $\frac{1}{2}$ " Capacity



No. 16F Drill

This drill contains all modern features. Electric light mounted in head, illuminating completely all working surfaces yet shielded from the operator's eyes. Switch for light and to start and stop electric motor mounted convenient to the operator at the head of the guard. Machine is precision built with floating spindle ball bearing throughout. Main frame adjustable for spindle quill wear. Spindle is accurately ground, quill graduated in $\frac{1}{16}$ " and is adjustable for wear. Depth gauge can be set to drill any desired depth which also is graduated and has lock nut to set the drill up to 4 inches the full travel of Spindle. Spindle can be locked in any position for use with rotary files or grinders in die making work. Drill furnished with oil groove table and base with T-slots in base. Motor is mounted on an adjustable base so belt can be tightened. Drill comes complete with three jaw key geared $\frac{1}{2}$ " capacity adjustable chuck, also motor and light completely wired to 10-foot cord with plug ready to run. Standard machine includes a $\frac{1}{3}$ horsepower 110 volt 60 cycle single phase motor. Motor is mounted on an adjustable slide base to give desired tension on belt. Larger motors and other current characteristics can be furnished on special order. Also a slotted table for wood-working attachments can be furnished.

SPECIFICATIONS

No. 16F Drill

Capacity $\frac{1}{2}$ " Steel or Iron.
 Spindle Speeds—450, 950, 1600, 2800, 5100, with 1725 R.P.M. motor.
 12" x 12" oil grooved tilting table with 10" x 10" machined surface.
 Base 13 $\frac{1}{4}$ " x 19" with T-slots machined surface 10" x 10".
 Depth gauge graduated in $\frac{1}{16}$ " stop collar can be set for any depth drill up to 4".
 Spindle floating type $\frac{5}{8}$ " full ball bearing 4" up and down travel.
 Chuck Jacobs $\frac{1}{2}$ " with wrench.
 Distance between chuck and base, 46 inches.
 Column 2 $\frac{3}{4}$ " precision ground heavy tubing.
 Height, 68 inches.
 Motor required $\frac{1}{3}$ H.P. 1725 R.P.M. vertical mounted.
 Shipping weight, 250 pounds.

No. 16B Drill

Same as 16F Drill except the following.
 Height, 40 inches.
 Distance between Chuck and Table, 10 inches.
 Distance between Chuck and Base, 16 inches.
 Traverse Table on Column, 9 inches.
 Weight with Motor, 225 lbs.



No. 16B Drill



Champion No. 1600 and 1600-B 16-Inch Swing 5-Speed Full Ball-Bearing Production Drill with T-Slot Oil Groove Base with Geared Adjustable Chuck 1/2" Capacity

A high grade 5-speed ball-bearing drill, 450 R.P.M. to 5100 R.P.M., 1/2" capacity in steel and 2" capacity in wood. Pulleys are balanced making a smooth running high and low speed drill with oil grooved 12" x 12" table and oil grooved T-slot base so that an oil pump can be used for wet drilling.

Table tilts to any angle up to 45°. Pin under table lines up table parallel to spindle. The drill head rests on a collar, clamped to column and permits head to be swung around like a radial drill and can be clamped anywhere without falling when head clamp is released.

The spindle is graduated in 1/16" and automatic stop can be set for any depth drilling up to 4", the up and down travel of spindle. Head clamp to lock spindle also permits take up for wear. Drill comes regularly with 0" to 1/2" No. 33 Jacobs chuck which will take all makes of woodworking attachments.

Standard equipment is 1/3 H.P., AC, 110 volt, 60 cycle, single phase motor and 10-foot cord, plug and motor switch. The motor is mounted on an adjustable motor base so any make motor can be mounted and belt tension can be adjusted and locked for belt tension desired.

The spindle overhangs 8" beyond column. The base is 15" x 18" overall surrounded by 1 1/2" oil groove 10" x 10" machined surface and T-slots.



1600 Floor Drill



1600-B Drill

SPECIFICATIONS

1600 FLOOR DRILL

Height, 68 inches.	Oil groove table 12" x 12" with 10" x 10" machined surface.
Drills to center 16-inch circle.	Spindle speeds—450, 950, 1600, 2800, 5100 R.P.M.
Distance between chuck and table, 41 inches.	Base 15" x 18" with 10" x 10" machined surface with T-slots.
Distance between chuck and machined base, 46 inches.	Floor space, 16 x 20 inches.
Column, 2 3/4 inches diam.	Capacity 1/2" in steel, 2" in wood. No. 33 Jacobs chuck with geared wrench.
Traverse of spindle, 4 inches.	Weight less motor, 210 lbs.
Diameter of spindle, 5/8 inches.	
Traverse table on column, 40 inches.	

1600-B DRILL

Specifications same as 1600 drill except for the following:	Distance between chuck and base, 17 inches.
Height, 40 inches.	Traverse table on column, 11 inches.

Distance between chuck and table, 12 inches.

No. 1602-B—Two Spindle Drill with Motor less Stand
No. 1603-B—Three Spindle Drill with Motor less Stand
Pair of Floor Legs to make Floor Drill, extra

1500 FLOOR DRILL. Same as No. 1600 with 18 inch Round Base.

Shipping weight with motor, 200 lbs.

1500-B BENCH DRILL. Same as No. 1600B with Base 17" x 12" and 10" x 10" machined surface.

Weight with motor, 175 lbs.



CHAMPION MOTOR DRIVEN BENCH DRILL No. 1400



Distance between Chuck and Base 10".
1750 R.P.M. $\frac{1}{4}$ H.P. AC 110V 60C 1PH Motor furnished regularly.
No. 1400J with Jacobs Chuck.
No. 1400 Drill with 3-Jaw Screw Chuck.
Weight 75 lbs.

SPECIFICATIONS

Height 27".
Spindle Speed 750-1750-3460 R.P.M.
with 1750 R.P.M. Motor.
Table is $7\frac{1}{8}$ " x $7\frac{1}{8}$ " machined slotted
surface to hold work.
Base is $7\frac{1}{8}$ " x 8" machined slotted surface.
Spindle is $\frac{5}{8}$ " dia. accurately ground.
Spindle Travel 2 $\frac{1}{2}$ " up and down has
adjustable spring to return spindle
when drilling.
Column is 1 $\frac{1}{2}$ " solid cold rolled steel.
Distance between Chuck and Table 8".

A good 14" Swing
3 speed Bench Drill
with $\frac{5}{8}$ " Spindle
with Ball Bearing
thrust for work up
to $1\frac{1}{2}$ " in cast iron
or 2" hole in wood.
Complete with $1\frac{1}{2}$ "
Jacobs Chuck taking
straight shank
bits or can be had
with $1\frac{1}{2}$ " 3 Jaw
Screw Chuck.

Comes complete
with $\frac{1}{4}$ H.P. 1750
R.P.M. Motor AC
110 volt 60 cycle
single phase ready to run or can
be ordered less Motor with Belt
and Motor Pulley with $1\frac{1}{2}$ " hole
in Motor Pulley.

Drill head can be swung completely
around so larger work can be
drilled if desired. Table is
clamped to column with lock
screw not marring column.

CHAMPION MOTOR DRIVEN BENCH DRILL NO. 1100

A Drill sold at a very
low price, yet does a
wide range of work
within the capacity
found on so many higher
priced drills. Has a
positive grip adjustable
 $\frac{1}{2}$ " chuck, three speeds
3450, 1725, 860. Graduated
quill, with its
drilling head adjustable
to any height desired.

Motor and base
adjustable to properly
tighten the V-belt, and
attachment cord and
plug.



SPECIFICATIONS

Height overall, 27".
Drills to center of 12" circle.
Diameter of spindle, $\frac{1}{2}$ ".
Greatest distance base to chuck, 11 $\frac{1}{2}$ ".
Spindle travel, 2 $\frac{1}{2}$ ".
Capacity, $\frac{1}{2}$ ".
Base size, 7 x 6".
Weight, 75 lbs.
Code—Fecomare.
Extra for $\frac{1}{2}$ " Jacobs Chuck.

CHAMPION MOTOR DRIVEN BENCH DRILL NO. 48E

Champion Motor Driven Bench Radial Drill with four speeds of spindle, represents features never found heretofore on a drill of this price.

The Motor is attached to the main frame of the Drill, in a vertical position, thereby eliminating cross-belts, and gives a direct drive to spindle with minimum friction; saving more power or securing more efficiency with same power.

The Lever Feed Handle actuates the up and down movement of the spindle by rack and pinion, giving a sensitiveness in drilling, which saves the breaking of drill bits. The Lever Feed Handle is arranged with spring to give automatic raising of the drill bit out of the hole being drilled, giving it sensitive feeding.

The Drill has screw and handle for quick raising and lowering of drilling head. The Drill Head can be securely clamped at any point, making it perfectly rigid and solid. Can be swung around on either side of column, enabling user to drill on either side of work bench, which is very convenient for drilling holes in frames or long pieces, usually requiring an expensive radial drill.

The spindle and graduated sleeve are ground to a micrometer fit and equipped with Ball Bearings.

Has Four-Step Sheave Pulley with V-belt, giving great pulling power at all speeds, without any slipping. Four spindle speeds are secured. Is equipped with $\frac{1}{4}$ H.P. motor, attachment cord, plug and switch ready to use.

Has self adjusting Belt Tightener to give belt the proper tension at all times.

SPECIFICATIONS

Drills to center of 14-inch circle.
Spindle has Adjustable Three-Jaw Chuck to take straight shank drill bits.
Drills holes up to $\frac{1}{2}$ inch.
Up and down travel of spindle 2 $\frac{1}{2}$ ".
Travel of Drill Head on column 7".
Distance between spindle and base 12".
Spindle speeds—875-1340-2885-3500 R.P.M.
Diameter of column 1 $\frac{1}{2}$ ".
Size of Planed Base 8" x 10".
Bench Space 14 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ".
Height 28".
Weight 120 lbs.
Code—Fechten.



CHAMPION ARBOR PRESS NO. 4

No. 4 Champion Arbor Press is a large and heavy floor Arbor Press needed in factories, machine shops and garages. Frame is heavy cast iron. Ram and Pinion are steel—heat-treated. Hand lever is adjustable for large and small work, and is counter-balanced. The table is adjusted by means of a screw—permitting it to remain where placed.

The babbitted cushion on the base protects the mandrel when failing. The ring prevents the mandrel from falling lengthwise.

SPECIFICATIONS	
Capacity in tons	5
Diameter of work	18 inches
Largest Mandrel	3 inches
Size of Table	10 $\frac{1}{2}$ inches
Greatest Distance from Table to Ram	29 inches
Size of Ram	22 inches x 2 $\frac{1}{8}$ inches
Floor Space	25 inches x 33 inches
Height	62 inches
Leverage	60 to 1
Weight, 1270 lbs. Code—Prince.	



**CHAMPION
STEEL SHEARS**



Champion Shear is made of Steel, there being not a piece of cast iron used in its entire construction. It will stand up without breakage under the work that we claim and fully guarantee for it.

No. 1 Champion Shear; Weight, 255 lbs.; has 6-inch knives, $\frac{1}{2}$ inch thick; will cut 4-inch by $\frac{1}{2}$ -inch flat iron, and 1-inch round or square iron. Weight 250 lbs. Code—Fikar.

No. 2 Champion Shear; Weight, 260 lbs.; has 12-inch knives, $\frac{1}{2}$ -inch thick; will cut 4-inch by $\frac{1}{2}$ -inch flat iron, and 1-inch round or square iron. Weight 252 lbs. Code—Fikene.

CHAMPION ARBOR PRESS NO. 3

The No. 3 Champion Arbor Press is the popular size, for use in factories, machine shops and garages, and is designed to mount on the bench or lathe bed.

The frame is cast iron; the ram and pinion of steel, heat-treated; the hand lever is adjustable for large and small work

SPECIFICATIONS	
Capacity in tons	3
Diameter of work	12 inches
Largest Mandrel	1 $\frac{1}{2}$ inches
Size of Table	7 inches
Greatest Distance from Table to Ram	11 inches
Size of Ram	11 inches x 17 inches
Floor Space	8 $\frac{1}{2}$ inches x 19 inches
Height	23 inches
Leverage	45 to 1
Weight, 160 lbs. Code—Prant.	



CHAMPION BENCH SHEAR NO. 10



Champion Bench Shear is a stoutly built Hand Shear. The blades are of the best grade steel.

The Handle of convenient length is compounded with a rack and pinion. It is a good light Shear for the workshop, tinsmith, farmer and general repairman.

Will Shear No. 14 Length of Shears, 4 $\frac{1}{2}$.
gauge. Height of Shears, 5 $\frac{1}{2}$.
Cuts round $\frac{1}{2}$.
Cuts flats $\frac{1}{2}$ x $\frac{1}{2}$. Weight, 10 lbs.
Code—Cegata

CHAMPION STEEL PUNCHES



Champion Steel Punches are built entirely of steel. On account of the breakage-proof, and rigid construction, this all-steel punch is far superior to the cast iron and cast steel machines. The punches are fastened by a key and the machine furnished with removable die holders.

No. 1 Champion Steel Punch; Capacity, $\frac{1}{2}$ -inch Hole in $\frac{1}{2}$ -inch Material; Throat, 2 $\frac{1}{2}$ inches. Weight, 30 lbs. Code—Fingard.

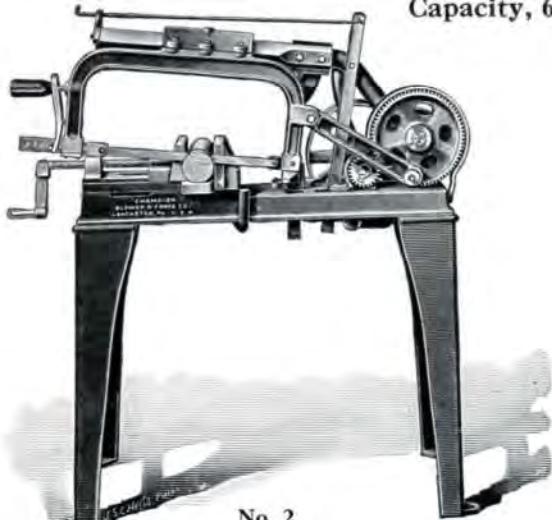
No. 2 Champion Steel Punch; Capacity, $\frac{1}{2}$ -inch Hole in $\frac{1}{2}$ -inch Material; Throat, 6 $\frac{1}{2}$ inches. Weight, 190 lbs. Code—Finken.



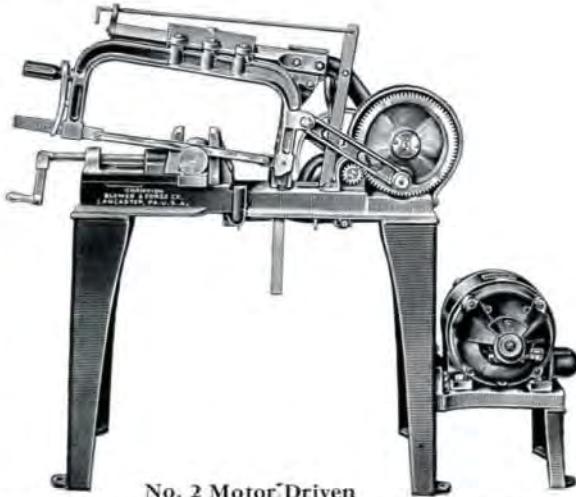
CHAMPION POWER HACK SAW MACHINE

NO. 2

Capacity, 6 Inches x 6 Inches



No. 2



No. 2 Motor-Driven

Champion No. 2 Power Hack Saw Machine combines many improved features, enabling it to saw fast and straight with maximum life to the saw blade.

It has the following important features:

A swivel vise cutting to an angle of 45 degrees with 14 inch saw blade.

Adjustable gravity feed by means of weight—reducing the breaking or buckling of saw blades to a minimum.

An automatic shut-off which instantly stops the machine when the sawing of material is completed.

A positive clutch—simply constructed—preventing complicated parts getting out of order.

Driven by accurately cut gears, requiring a V-belt and positive drive with less power.

An attachment to automatically lift the saw blade on return stroke, thereby increasing the cutting life of the blade, and reducing to a minimum the breakage

DETAILED DIMENSIONS

Length of Blades, 8, 12 or 14 inches.

Stroke of Blade, 6 inches.

Cutting Capacity, 6 inches x 6 inches.

Driving Pulley, 8 $\frac{1}{2}$ inches diam. x $\frac{1}{2}$ inch V-Belt.

Floor Space 36 inches x 18 inches.

Code—Benter.

No. 2 Hack Saw Machine with $\frac{1}{4}$ H. P. Motor, 110-220 volts, alternating current and switch. Weight, 380 lbs. Code—Benzoe.

CHAMPION POWER HACK SAW MACHINE

NO. 1

Capacity, 4 Inches x 4 Inches

Champion No. 1 Power Hack Saw Machine is a well-made, rugged, low-priced Hack Saw, for light work in machine shops and garages, also for construction work. Will cut fast and straight.

Equipped with positive clutch, simply constructed, preventing complicated parts getting out of order.

Is equipped with automatic shut-off which instantly stops the machine when the sawing of the material is completed.

Made with adjustable bearings so wear can be taken up when necessary.

DETAILED DIMENSIONS

Length of Blades, 10 inches to 12 inches.

Stroke of Blade 4 inches.

Cutting Capacity, 4 inches x 4 inches.

Drive Pulley, 8 $\frac{1}{2}$ inches diam. x $\frac{1}{2}$ inch V-Belt.

Floor Space required, 24 inches x 10 inches.



No. 1

CHAMPION BENCH POWER HACK SAW MACHINE

NO. 0

Capacity 2 $\frac{1}{2}$ inches x 2 $\frac{1}{2}$ inches



A well-made, back-gearred Bench Hack Saw, which will cut fast and accurately up to its capacity.

Length of blade 10"

Stroke of blade 3"

Cutting capacity 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "

Drive pulley 6" diam. for V-Belt.

Size of base 10 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ ".

Speed of pulley 320 to 360-R.P.M.

Gear ratio 4 $\frac{1}{2}$ to 1.

Weight 40 lbs.

Code—Benir.



CHAMPION POWER HACK SAW MACHINE WET CUT V BELT DRIVE

NO. 3

Capacity 8 inches x 8 inches



Champion No. 3 Wet Cut V Belt Motor Driven Power Hack Saw Machine has many improved features which saws fast and straight and pump for cooling system.

Special features are:

- Lifts on forward stroke.
- All Gears are machine cut.
- Motor adjusted to tighten belt giving 3 speeds 90—110—130 R.P.M.
- Automatic shut off stops machine when sawing is completed on forward stroke.
- Gravity feed adjusts various cutting conditions.
- Swivel vise cuts to an angle of 45° up to 6 inches.
- A Position Clutch prevents parts getting out of order.
- An eccentric to automatically lift the saw blades on return stroke and gradually replacing the blade in contact with the work in cutting slot.
- Cooling pump, gear operated, applies cutting compound on the blade.

SPECIFICATIONS

Length of Blade.....	14, 17 or 18"	Gear Ratio.....	52 to 1
Stroke of blade.....	6"	Speed of Pulley.....	Adjustable 140 to 220 RPM
Cutting capacity.....	8 x 8"	Floor Space.....	18" x 36"
Driving Pulley.....	8 1/2" x 1 1/2" V Belt	Size of Motor.....	1/2 H.P.
Vise Jaws.....	6 3/4" long	Weight.....	425 lbs.

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CHAMPION
BLOWER & FORGE CO.
* LANCASTER, PA. U.S.A.



HERCULES POWER HAMMER

With Flexibility in Stroke of a Hammer in a Mechanic's Hand

Made in Three Sizes



No. 0 and 1

Hercules "Patented" Power Hammer is made in three sizes: No. 0 with Ram weighing 30 pounds, No. 1 with Ram weighing 65 pounds, and No. 2 with Ram weighing 125 pounds. They contain all the good features of the best Hammer ever built, and sell at a moderate figure.

The frame and anvil are cast in one solid piece, therefore insures perfect alignment of the dies and a solid anvil, giving rigidity and solidity for the reception of severe and rapid blows.

The position of the dies is such that there is no limit to the length of the bar which can be worked.

They are double-sided Hammers, and can be used as well from one side as the other. They can be placed between two fires, and operated equally as well from either fire by a double treadle.

The control of these Hammers is so perfect that the blow can be made at the will of the operator, from a gentle stroke to a rapid succession of mighty blows, and material to its full capacity can be forged down to the size of a horseshoe nail without any change of adjustment.

The friction for stopping the Hammers is such that the operator can strike one blow and stop with the Hammer on the up-stroke.

The Hammer Head and Ram stand out from the main part of the frame, are not covered up to obscure the work of the operator, also in forging iron with an angle in it, you can get in very close to the corner.

The height of the frame is such that a tire three feet in diameter can be welded, and it will weld a tire 4 inches wide and 1 inch thick very easily.

No. 0 Hercules Power Hammer, has upper die $3 \times 1\frac{1}{2}$ ins.; lower die, 3×2 ins. Size of base of Hammer, 18×25 ins. Height over all, 5 ft. 4 ins. Weight of ram, 30 lbs. Pulley, $9 \times 2\frac{1}{2}$ ins. Speed, 400 R.P.M. Capacity, 2 ins.; square or round. Weight, 1170 lbs. Code—Formage. **No. 1 Hercules Power Hammer**, has dies with plain surface, $2\frac{1}{2} \times 3$ ins.; and two plain and one tapering groove for forging round iron, straight and tapering. Size of base of Hammer, 20×27 ins. Height over all, 5 ft. 8 ins. Weight of ram, 65 lbs. Pulley, $10 \times 2\frac{1}{2}$ ins. Speed, 300 R.P.M. Capacity, $2\frac{1}{2}$ ins.; round or square. Weight, 1355 lbs. Code—Figan.

Extra dies for special work will be charged extra. **No. 2 Hercules Power Hammer**, upper die, size of face, 6×3 ins.; lower die, size of face, 6×3 ins.; size of base of Hammer, $27 \times 46\frac{1}{2}$ ins. Height over all, 7 ft. 3 ins. Weight of ram, 125 lbs. Pulley diameter, 14 ins.; face $6\frac{1}{2}$ ins. Speed, 150 R.P.M. Capacity, 3 ins.; round or square. Weight, 4500 lbs. Code—Flexible.



No. 2



No. OE and 1E

HERCULES ELECTRICALLY DRIVEN POWER HAMMER

Hercules "Patented" Electrically Driven Power Hammer is identical with the Hercules Patented Power Hammer shown above; the only difference being that this Hammer is operated by an electric motor. The Motor is placed to give a long belt between the motor and the driving pulleys of the Hammer, giving an advantage in power not usually found.

This Hammer is furnished with a switch for starting and stopping the motor.

Before ordering a Hercules "Patented" Electrically Driven Power Hammer, ask your electric current manufacturer whether the current is direct or alternating and the voltage.

No. 0E Hercules Electrically-Driven Power Hammer, any Current and Voltage. Has Upper Die, $3 \times 1\frac{1}{2}$ ins.; Lower Die, 3×2 ins. Size of Base of Hammer, 18×25 ins. Height over all, 5 Ft. 4 ins. Weight of Ram, 30 lbs. Pulley, $18 \times 2\frac{1}{2}$ ins. Speed, 400 R.P.M. Capacity, 2 ins.; Square or Round. Size of Motor 1 H. P. Weight, 1200 lbs. Code—Firstree.

No. 1E Hercules Electrically-Driven Power Hammer, any Current and Voltage. Has Dies with Plain Surface, $2\frac{1}{2} \times 3$ ins., and Two Plain and One Tapering Groove for Forging Round Iron, Straight and Tapering. Size of Base of Hammer, 20×27 ins. Height over all, 5 Ft. 8 ins. Weight of Ram, 65 lbs. Pulley, $18 \times 2\frac{1}{2}$ ins. Speed, 300 R.P.M. Capacity, $2\frac{1}{2}$ ins.; Round or Square. Size of Motor 2 H. P. Weight, 1620 lbs. Code—Filtypie.

No. 2E Hercules Electric Driven Power Hammer, any Current or Voltage. Upper Die, size of face, 6×3 ins.; Lower Die, size of face, 6×3 ins. Size of base of Hammer, $27 \times 46\frac{1}{2}$ ins. Height over all, 7 Ft. 3 ins. Weight of Ram, 125 lbs. Pulley diameter 32 ins., face $6\frac{1}{2}$ ins. Speed, 150 R.P.M. Capacity, 3 ins.; Round or Square. Size of Motor 5 H. P. Weight, 4600 lbs. Code—Flexipede.

NO. 1 CHAMPION COLUMN GRINDER



With Ring Oil Bearings

Made with V in Flat Pulley or Tight and Loose Pulleys

NO. 11 CHAMPION COLUMN GRINDER



With Ring Oil Bearings

No. 1 Champion Upright Column Grinder has been built heavy and substantial to meet all conditions of grinding and polishing in the machine shop, foundry, blacksmith shop, garage, etc.

The Champion Grinder has special long spindles and bearings. The bearings have unusually large space for the operator and for grinding large and irregular shaped castings. It is designed to grind both large and small work, as well as bicycle and automobile work, also polishing.

The bearings are adjustable and babbitted with genuine babbitt and are provided with ring oilers, giving perfect lubrication. Each adjustable bearing has four bolts, holding them in a true line.

The Champion Grinder is supplied with rests to stand heavy work and can be easily arranged for the side or face of the wheel.

No. 1 Champion Upright Column Grinder: Capacity, 16 Inches x 3 Inches; Wheel with 1 1/4-inch Hole; Arbor to Floor, 34 Inches; Diameter of Base, 18 Inches; Length of Arbor, 40 Inches; Diameter of Arbor, 1 1/4 Inches; Size of Pulleys, 4 3/4 Inches x 4 1/4 Inches. Weight Complete, 255 lbs. *Code*—Fiest. Extra for Tight and Loose Pulleys. Guards for above Grinder for 16-inch Wheel. Weight 120 lbs.

No. 11 Champion Upright Column Grinder is a very substantial design for garage and general repair work. Bearings are long, well babbitted with genuine babbitt, fitted with ring oilers and oil reservoir, giving perfection lubrication. It is equipped with adjustable rests, which can readily be removed, and guards. The extra long distance between the wheels permits the operator to grind or buff large pieces without coming in contact with the stand.

No. 11 Champion Upright Column Grinder: Capacity, 12 x 2 1/2 Inches. Wheel with 1-inch Hole. Arbor to Floor, 36 1/2 inches; Diameter of Base, 14 Inches. Length of Arbor, 25 inches. Size of Pulleys, 3 3/4 x 3 Inches. Weight, 165 lbs. *Code*—Funk.

NO. 2, NO. 0 CHAMPION BENCH GRINDERS



With Ring Oil Bearings Made with V in Flat Pulley

No. 4 CHAMPION BENCH GRINDER

Made with Special V Pulley



No. 4 Champion Bench Grinder: Capacity 6 inches x 1-inch; Wheels with 3/4-inch Hole. Length of Arbor 12 inches; Arbor to Bench 5 1/4 inches; Size of Base 7 inches x 3 1/2 inches; Size of Pulley 2 inches x 1 1/4 inches. Can be furnished with V-pulley. Diameter of Arbor 3/4 inch. Weight 20 lbs. *Code*—Feesley.

No. 4A Champion Bench Grinder with Tight and Loose Pulley: Weight 22 lbs. *Code*—Feesley.

No. 2 Champion Bench Grinder: Capacity, 16 Inches x 2 Inches; Wheels with 1 1/4-inch Hole. Arbor to Bench, 9 1/2 Inches. Size of Base, 13 Inches x 9 Inches. Length of Arbor, 25 Inches. Diameter of Arbor, 1 1/4 Inches. Size of Pulley, 4 1/2 Inches x 4 Inches. Weight, 100 lbs. *Code*—Femaler.

No. 2A Champion Bench Grinder: with tight and loose pulleys. Size of Base, 15 Inches x 9 Inches. Length of Arbor, 29 Inches. Weight, 130 lbs. *Code*—Femalerte.

Guards for above Grinders for 16-Inch Wheels. Weight, 50 lbs.

No. 0 Champion Bench Grinder: Capacity, 12 inches x 2 Inches. Wheel with 1-inch Hole; Arbor to Bench, 8 Inches; Size of Base, 9 Inches x 6 Inches; Length of Arbor, 18 Inches; Diameter of Arbor, 1 1/4 Inches; Size of Pulleys, 4 Inches x 3 Inches. Weight, 50 lbs. *Code*—Fiesius.

No. 0A Champion Bench Grinder: with Tight and Loose pulleys. Size of Base, 13 Inches x 6 Inches; Length of Arbor, 21 Inches; Weight, 65 lbs. *Code*—Fiesuste.

Guards for either Grinder for 12-inch Wheels. Weight, 40 lbs.

No. 3 CHAMPION BENCH GRINDER

With Ring Oil Bearings Made with V in Flat Pulley

No. 3 Champion Bench Grinder: Capacity 10 inches x 1 1/2 inches; Wheel with 3/4-inch Hole; Arbor to Bench 6 3/4 inches; Size of Base 10 1/2 inches x 6 inches; Size of Pulleys 3 inches x 2 inches; Length of Arbor 15 inches; Diameter of Arbor 5/8 inch. Weight 30 lbs. *Code*—Felsinamte.

No. 3A Champion Bench Grinder: with Tight and Loose Pulleys. Length of Arbor 16 inches; Weight 35 lbs. *Code*—Felsinamte. Guards for either Grinder for Wheels. Weight, 30 lbs.



CHAMPION SWIVEL BASE VISES



Heavy Weight with Removable Pipe Jaws

No. 3-3 1/2-4-5-6

Champion Vises are well made, having a cold rolled steel draw bar; removable hardened steel jaws, knurled and ground to fit. Handle and screw are forged steel. The thread on the screw is square or acme thread machine cut.

Top of Jaws and Anvil Face, as well as all steel parts, are highly polished.

The Body and Base are painted red—attractively finished, and are real values for light work in Machine Shops, Pattern and Model Shops, Electrical and Radio Shops, Garages, and for the Home Workshop.

Swivel base holds fast in any position the same as all higher priced Vises costing three times as much. They can be used as stationary vises, if so desired.

Have removable malleable pipe jaws holding 1 1/4" pipe.

Packed in strong individual fibre cartons.

No. 3-3 1/2-4 Vises furnished with Hardie.

SPECIFICATIONS

No.	Vise	Width of Jaw	Jaw Open-ing	Height	Diam. Handle Head	Diam. Forged Screw	Size Steel Draw-Bar	Size Hardie	Size Anvil Overall	Size Base Lock Screw	Wt. lbs.	Std. Pkg.	Code
3	Radio and Home	3"	3"	6 1/4"	1 1/8"	5/8"	1 1/4 x 5/8"	3/4"	3 5/8 x 1 1/4"	5/8"	16	12	Cepnac
3 1/2	Radio and Home	3 1/2"	3 1/2"	6 5/8"	1 1/8"	5/8"	1 1/4 x 3/4"	3/4"	4 x 2 1/4"	5/8"	21	12	Cepam
4	Home and Garage	4"	4"	7 3/8"	1 1/8"	5/8"	1 1/2 x 3/4"	3/4"	4 1/2 x 2 3/8"	5/8"	30	12	Cepina
5	Garage and Shop	5"	7"	8 3/4"	1 5/8"	3/4"	1 3/4 x 1"	none	5 x 3"	3/4"	65	1	Cepinis
6	Garage and Shop	6"	8"	10 1/8"	2"	1"	2 x 2"	none	6 1/2 x 4 3/4"	3/4"	120	1	Ceppo

CHAMPION BALL BEARING OR RING OILING SAW MANDRELS



Standard Saw Mandrel

Champion Saw Mandrels are extra heavy, and are fitted with rigid Ring Oiling Pillow Blocks which construction insures adequate oiling.

The Arbors are built of high grade machinery steel, fitted with heavy flanges. Pulleys are crowned and are always shipped on left-hand side when saw is running towards you, with left-hand thread unless otherwise ordered. Pulley can be furnished on right-hand side or on center if specially ordered.

Saw Mandrels can be furnished with Ball Bearings at extra cost.

Saw Mandrels can be furnished both ends threaded at extra cost.

Saw Mandrels furnished at no extra cost with pulley for V-belt.

Mandrel threaded both ends

Number of Mandrel	Diam. of Pulley	Face of Pulley	Diam. of Flange	Diam. of Shaft	Hole in Saw	Length of Shaft	Net Weight	Code
000	2	1 1/4	2	1 1/8	1 1/8	12	7 lbs.	Sopitar
00	2	2	2	1 1/8	1 1/8	12	8 lbs.	Sopited
0	2	3	2 1/8	1 1/8	1 1/8	20	14 lbs.	Sopitore
1	2 1/2	3 1/2	3 1/8	1 1/8	1 1/8	20	22 lbs.	Sopiant
2	3	4	3	1 1/8	1 1/8	23	30 lbs.	Sopilar
3	3 1/2	4 1/2	3 1/8	1 1/8	1 1/8	25	35 lbs.	Sopletes
4	4	5	4 1/2	1 1/8	1 1/8	28	54 lbs.	Sopiona
5	4 1/2	5 1/2	4 1/2	1 1/8	1 1/8	30	57 lbs.	Sopolis
6	5	6	5	1 1/8	1 1/8	32	68 lbs.	Sopor
6 1/2	5	6	5	1 1/8	1 1/8	48	80 lbs.	Sopad
7	5 1/2	6 1/2	5 1/2	1 1/8	1 1/8	34	70 lbs.	Soporo
8	6	7	6	1 1/8	1 1/8	36	90 lbs.	Soporous
9	7	8	6	1 1/8	1 1/8	41	175 lbs.	Soportar
10	8	8	6	1 1/8	1 1/8	45	210 lbs.	Soppalso
11	9	10	6	2 1/8	2	45	290 lbs.	Soprano

No. 000 Saw Mandrel made with Solid Cast Iron Bearings.

CHAMPION DRILLING VISE

Champion No. 5 Drilling Vise can be bolted to the Drill Press Table; and is as rigid and solid as any Vise attached to a Bench, thereby enabling the operator to drill holes in intricate pieces and pieces that cannot be held except in a Vise. With the use of a Drilling Vise more work can be done with ease and less breakage of drill-bits. This Vise is used just as efficiently where holes are to be tapped.

Vise Jaws are 5 inches wide, 2 inches high faced with hardened steel. The stationary Jaw has V-slots. The loose Jaw swivels to take Morse Taper and opens 6 inches.

Body of Vise made of gray iron, accurately machined. The Screw is special steel, with lathe-turned threads.

No. 5 Champion Swivel Jaw Drilling Vise with 5-inch Jaw opening 6 inches. Weight 25 lbs. Code—Cefiro.

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CHAMPION
BROWER & FORGE CO.
* LANCASTER, PA. U.S.A.



CHAMPION ANGLE BENDER FOR BENDING ANGLES, TEES, AND FLATS

No. 3

An inexpensive machine to do a variety of bending operations on angles, tees, flats, and channels. This machine is sturdily built with a supporting frame on both sides of the rolls to give greater strength. The center roll is easily removed by releasing two caps in order to remove complete circles from the machine. The machine is provided with adjustable anti-curling devices to prevent curling of angles when run through the bender singly. However, the machine is powerful enough to bend two angles at a time inserted back to back. The bender will do a great variety of bending at a fraction of the initial investment required to purchase any other power driven benders. Rolls are all adjustable, will bend angles leg out to 12" circles, leg in, to 30" circles.

CAPACITY

Angle Iron	1 1/2"
Tee Iron	1 1/2"
Channel Iron	4"
Flats	4 x 1/4"
Rounds	1"

Pulley Speed—35 R.P.M.

H.P. Required—5

No. 3 Champion Angle Bender
furnished less pulley 700 lbs.



NO. 4 CHAMPION AMERICAN TIRE AND AXLE SHRINKER

No. 4 Champion American Tire and Axle Shrinker represents a stout, bulky and powerful machine guaranteed to shrink 4 x 1-inch round edge tire down to the smallest buggy tire and axles up to 1 1/4 inches square. It will shrink with one stroke of the lever 1 1/4 inches. The Shrinker will stand all the pounding necessary to keep down the kinks in the tire.

The jaws are made of tool steel with machine-cut teeth hardened. The jaws are worked by a mechanical lever and are thrown in and out by a simple movement of the hand.

It will be seen that the tire is gripped on its flat sides, both top and bottom, and the tire is held with a perfect grip until it is shrunk.

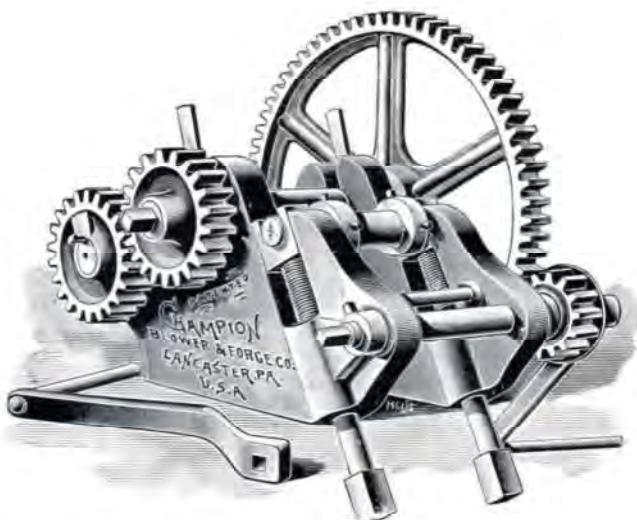
No. 4 Champion American Tire and Axle Shrinker will shrink up to 4 x 1-inch round edge tire and axles up to 1 1/4 inches, with two steel jaws 4 x 2 inches wide. Weight, 375 lbs. Code—Ferlet.

CHAMPION EUREKA TIRE BENDERS

Champion New Patent Eureka Tire Bender is a strong and powerful tool, built with all the latest improvements; adjusting roll with a graduated indicator on each side of Bender, showing the exact size of the tire being bent. No more trouble to bend imperfect iron into perfect tires; the principle for getting the tire out after being bent is quick and entirely practical. The two end rolls are provided with collars to prevent the tire from twisting so both bends meet when bent. It is double back geared, and worked with two cranks which are furnished with each Bender; has two speeds, one for light and fast work and the second for heavy work.

No. 1 New Style Eureka Bender, Bends 4 x 1-Inch Tire.
Weight, 195 lbs. Code—Felt.

No. 2 New Style Eureka Bender, Bends 6 x 1-Inch Tire.
Weight, 275 lbs. Code—Feminine.





CHAMPION EASY SCREW PLATE DIE

Easy Trade Mark, Registered September 18, 1906, No. 56,390

For simplicity in construction, compactness and neatness in design, with every improvement in a Screw Plate which makes a perfect Screw at a Single Cut, the "Easy" ranks among the highest; the Die being adjustable by the use of a Taper-Head Screw with a Taper Nut.

CHAMPION EASY SCREW PLATES—With U.S. Std. Dies and Taps

Nos. 2B, 5B, 5½B, 7B and 9B Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. Taper Taps Furnished.

No. 1B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{11}$, $\frac{3}{2}^{11}$. Code—Feud. \$24.20
Taps. Dies $1\frac{1}{2}$ inches diameter. Stock $15\frac{1}{2}$ inches long.
Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Wt. $7\frac{1}{2}$ lbs.

No. 1½B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{4}^{16}$, $\frac{7}{8}^{11}$, $\frac{3}{2}^{11}$. Code—Fuet. \$28.60
Taps. Dies $1\frac{1}{2}$ inches diameter. Stock, $15\frac{1}{2}$ inches long.
Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Wt. $7\frac{1}{2}$ lbs.

No. 2B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{18}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. Code—Feverfew. \$30.80
Taps. Dies First two sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 14 lbs.

No. 5B. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{18}$, $\frac{5}{8}^{11}$, $\frac{1}{2}^{10}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. Code—Finis. \$37.40
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 14 lbs.

No. 5½B. 8 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{18}$, $\frac{5}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{1}{2}^{10}$. Code—Fibrous. \$41.80
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 15 lbs.



No. 7B. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$. Code—Fictile. \$57.20
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 18 lbs.

No. 9B. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$. Code—Ficarne. \$61.60
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 20 lbs.

CHAMPION EASY SCREW PLATES Can Be Furnished With S.A.E. Dies and Taps

CHAMPION EASY COMBINATION SCREW PLATES

With Both U. S. Standard and S. A. E. Taps and Dies

No. 11. 10 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$; and S.A.E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{1}{2}^{24}$, $\frac{7}{8}^{20}$, $\frac{1}{2}^{20}$. Code—Fictal. \$41.50
Taps. Dies $1\frac{1}{2}$ inches diameter. Stock, $15\frac{1}{2}$ inches long.
Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Wt. 17 lbs.

No. 12. 10 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$; and S.A.E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{1}{2}^{24}$, $\frac{7}{8}^{20}$, $\frac{1}{2}^{20}$. Code—Fidcar. \$51.70
Taps. Dies First two sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 18 lbs.

No. 15. 14 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$; and S.A.E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{1}{2}^{24}$, $\frac{7}{8}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$. Code—Fieos. \$62.70
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 19 lbs.

No. 15½. 16 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$; and S.A.E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{1}{2}^{24}$, $\frac{7}{8}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$. Code—Fifera. \$71.50
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 22 lbs.

No. 17. 18 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$. Code—Figoso. \$96.80
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 23 lbs.

Nos. 12, 15, 15½, 17 and 19 Easy Sets are Furnished with TWO STOCKS. Every set is Packed in a Hardwood Case.



No. 15½

No. 19. 20 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$, $\frac{1}{2}^{10}$; and S.A.E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{1}{2}^{24}$, $\frac{7}{8}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{2}^{20}$. Code—Fibigo. \$105.60
Taps. Dies First four sizes, $1\frac{1}{2}$ inches diameter; larger sizes, $1\frac{1}{2}$ inches diameter. Two Stocks, $15\frac{1}{2}$ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 24 lbs.



No. 71.

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CHAMPION SCREW PLATES

No. 70. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{1}{2}^{16}$, $\frac{7}{8}^{11}$, $\frac{1}{2}^{11}$. Code—Finis. \$19.80
Taps. Dies $\frac{1}{2}$ inch in diameter. Stock 7 inches long.
Tap Wrench No. 1, 7 inches long. Wt. 3 lbs.

No. 71. 7 sizes. $\frac{1}{4}^{45}$, $\frac{1}{4}^{40}$, $\frac{1}{4}^{40}$, $\frac{1}{2}^{32}$, $\frac{1}{2}^{24}$, $\frac{1}{2}^{24}$, $\frac{1}{2}^{20}$. Code—Fitchet. \$23.10
Taps. Dies $\frac{1}{2}$ inch in diameter. Stock, 7 inches long.
Tap Wrench No. 1, 7 inches long. Wt. $3\frac{1}{2}$ lbs.

CHAMPION
BLOWER & FORGE CO.
LANCASTER, PA. U.S.A.



CHAMPION ADJUSTABLE STOCK AND DIE SETS



No. 1001B Set

No. 1001B Set. 5 sizes. 1 $\frac{1}{2}$ " diam. dies, cutting 1 $\frac{3}{8}$, 1 $\frac{1}{8}$, 1 $\frac{1}{16}$, 1 $\frac{1}{32}$, 1 $\frac{1}{64}$. U. S. Standard Thread. One Stock, 14" long. All mounted on Board. Code—Cellule \$13.00

No. 1001A Set. 5 sizes. 1 $\frac{1}{2}$ " diam. dies, cutting 1 $\frac{3}{8}$, 1 $\frac{1}{8}$, 1 $\frac{1}{16}$, 1 $\frac{1}{32}$, 1 $\frac{1}{64}$. S.A.E. Standard Thread. One Stock, 14" long. All mounted on Board. Code—Celoce \$13.00

CHAMPION ROUND ADJUSTABLE SPRING DIES



Champion Round Adjustable Spring Die is split on one side and spring tempered on the other side to allow adjustment of the die which is done by a fine pitch screw of the split side, which separates the die, or allows them to spring together. Liberal chip space is provided in the clearance holes.

U. S. Standard Thread furnished unless otherwise ordered. Left Hand Dies, sizes, dimensions not listed, and special threads are subject to special prices.

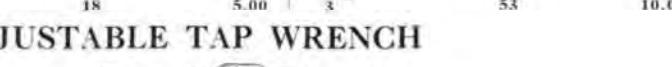
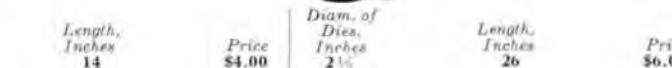
	1 $\frac{1}{2}$ " dia. 1/4" thick	1 $\frac{1}{2}$ " dia. 1/8" thick	1 $\frac{1}{2}$ " dia. 1/2" thick	2 $\frac{1}{2}$ " dia. 1/8" thick	2 $\frac{1}{2}$ " dia. 1/4" thick	3 $\frac{1}{2}$ " dia. 1" thick		1 $\frac{1}{2}$ " dia. 1/4" thick	1 $\frac{1}{2}$ " dia. 1/8" thick	1 $\frac{1}{2}$ " dia. 1/2" thick	2 $\frac{1}{2}$ " dia. 5/8" thick	2 $\frac{1}{2}$ " dia. 3/4" thick	3 $\frac{1}{2}$ " dia. 1" thick	
Machine Screw Sizes	\$1.50	\$1.50									\$2.40	\$4.00	\$6.00	
1/16	1.50							9/16			2.40	4.00	6.00	
3/32	1.25							5/8						
1/8	1.25	1.50						11/16						
5/32	1.25	1.50						3/4						
3/16	1.25	1.50						13/16						
7/32	1.25	1.50						7/8						
1/4	1.25	1.50	\$2.40	\$4.00				15/16						
5/16	1.25	1.50	2.40	4.00				1						
3/8		1.50	2.40	4.00				1 1/8						
7/16		1.50	2.40	4.00				1 1/4						
1/2		1.50	2.40	4.00	\$6.00			1 3/8						
								1 1/2						

STOCKS FOR CHAMPION ROUND ADJUSTABLE SPRING DIES

Stocks for Champion Round Adjustable Spring Dies are constructed of malleable, machined and polished with knurled handles to give a firm grip. Set Screw enters the countersink in the die, holding it solid.

Diam. of Dies, Inches	Length, Inches	Price	Diam. of Dies, Inches	Length, Inches	Price	Diam. of Dies, Inches	Length, Inches	Price
15/16	6 5/8	\$2.00	1 1/2	14	\$4.00	2 1/2	26	\$6.00
1	9	2.50	2	18	5.00	3	53	10.00

CHAMPION ADJUSTABLE TAP WRENCH



CHAMPION ADJUSTABLE TAP WRENCH

The Champion Adjustable Tap Wrenches are light, strong and durable. The jaws are made of the highest grade tool steel, which centralizes the Tap in the holder. These Tap wrenches are made in eight sizes.	No. 1, 7/8 in. to 1 in. Length, 7 inches. Code—Federfasa... \$ 3.00	No. 5, 1 in. to 1 1/2 in. Length, 26 inches. Code—Filigrees... \$12.00
	No. 2, 7/8 in. to 1 1/2 in. Length, 10 1/2 inches. Code—Feculences 5.00	No. 6, 1 in. to 1 1/2 in. Length, 34 inches. Code—Fillipeens. 16.00
	No. 3, 1 in. to 1 1/2 in. Length, 15 inches. Code—Fecundates. 5.70	No. 7, 1 in. to 2 in. Length, 40 inches. Code—Fillonse.... 24.00
	No. 4, 1 in. to 1 1/2 in. Length, 20 inches. Code—Filibustus. 7.00	No. 8, 1 1/2 in. to 2 1/2 in. Length, 54 inches. Code—Filleran... 30.00

CHAMPION PUMPKMAKERS' STOCKS AND DIES



The Champion Triple Pumpmaker's Stock, with three dies complete. Cutting 1 $\frac{1}{8}$, 1 $\frac{1}{16}$, 1 $\frac{1}{32}$ \$11.00



The Champion Double Pumpmaker's Stock, with two dies complete. Cutting 1 $\frac{1}{8}$, 1 $\frac{1}{16}$ \$8.50

1/16 Die and Stock, complete \$6.00
1/14 Die and Stock, complete 6.00
1/12 Die and Stock, complete 6.00

1/16 Die and Stock, complete \$6.00
1/14 Die and Stock, complete 6.00
1/12 Die and Stock, complete 6.00

All Pump Dies will be sent U. S. Standard thread unless otherwise ordered.

www.OzarkToolManuals.com

CHAMPION
BLOWER & FORGE CO.
* LANCASTER, PA. U.S.A.

